Big Pic Forest

Independent Forest Audit

2004-2009

Arbex Forest Resource Consultants Ltd.
Oxford Mills, Ontario
December 2009

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1.0. Executive Summary

This report presents the findings of an Independent Forest Audit of the Big Pic Forest (SFL # 542004) conducted by Arbex Forest Resource Consultants Ltd.[1] for the period April 1, 2004 to March 31, 2009. This audit assessed the forest management activities of Marathon Pulp Inc. (MPI), 686860 Ontario Ltd (Overlapping Licencee) and the Ontario Ministry of Natural Resources, Wawa District. MPI declared bankruptcy in February 2009 and PricewaterhouseCoopers was named as the Trustee.

All forest harvesting operations were supervised by 686860 Ontario Ltd. (an affiliate of Buchanan Forest Product Ltd. (BFPL)) under a series of multi-year overlapping licences. Logging operations were contracted to various local operators. BFPL provided forest management services to 686860 Ontario Ltd. prior to its going into receivership in March 2009. GreenForest Management Inc. received verbal direction from 686860 Ontario Ltd. to act on its behalf during the IFA audit to provide forest management services until March 31, 2010.

The audit conformed to the requirements of the 2008/2009 Independent Forest Audit Process and Protocol (IFAPP) prepared by the OMNR. The IFA process is based on a detailed assessment of eight broad principles. Each principle has associated criteria which are examined to determine if the management of the Forest was in compliance with provincial legislation, regulations and policies that were in effect during the audit term.

The management of the Forest was generally in compliance with the legislation, regulations and policies that were in effect during the audit term and there was compliance with the terms and conditions of the Sustainable Forest Licence. Had the SFL holder not been in receivership, the audit team would have recommended that the Minister extend the term of Sustainable Forest Licence # 542004 for a further five years.

This conclusion was based on the following audit findings:

- Forest management planning activities during the audit term adhered to Forest Management Planning Manual (FMPM) requirements.
- The Local Citizens Committee (LCC) was properly constituted. With the exception of a nine month period noted in this report the committee provided advice on the planning and the management of the Forest.
- Identified values (e.g. fisheries, wildlife, cultural) were appropriately protected through proper planning and implementation of forest management prescriptions.

[1] A list of the audit team members and their qualifications is presented in Appendix 6.

- Forest management activities (e.g. harvest, renewal, tending) were conducted in accordance with the Forest Management Plan(s) (FMP) and were compliant with the Crown Forest Sustainability Act (CFSA).
- With the exceptions noted in this report, recommendations of the 2004 IFA were satisfactorily addressed.
- Our assessment is that none of the reported trends in the Comparison and Trend Analysis of Planned vs. Actual Forest Operations Report poses an imminent threat to forest sustainability.

The audit identified several areas where improvements in the forest management planning process and forest operations are required. These areas include:

- A requirement to minimize site degradation by rutting.
- A requirement to more proactively manage slash and other logging debris.
- A requirement to address the backlog of area requiring free-to-grow survey.
- A requirement to ensure that tending is appropriate to site/residual stand conditions and delivered in a timely manner.
- A requirement to ensure that the FMP planning team is effectively supported by the FMP Steering Committee.
- A requirement for the District OMNR to adequately resource and implement a Silvicultural Effectiveness Monitoring Program on an annual basis.
- A requirement for Corporate and District OMNR to ensure funding and FMPM obligations related to the functioning of LCCs are met.
- A requirement for the SFL holder to satisfy FMPM and FIM requirements for the completion of Annual Reports.
- A requirement for the OMNR Regional Director to ensure that sufficient resources are available for compliance monitoring.
- A requirement to ensure that reporting obligations for IFA Action Plans and Status Reports are met.
- A requirement that the District OMNR and the SFL holder ensure that adequate records are maintained to assess the "silvicultural effectiveness" of renewal treatments.

Sixteen recommendations have been provided to address these concerns. Licencing issues associated with the bankruptcy of the SFL holder must be resolved to ensure the continued delivery of forest management on the unit and the successful achievement of forest management plan objectives beyond March 31, 2010.

2.0. Table of Recommendations and Best Practices

TABLE 1. RECOMMENDATIONS AND BEST PRACTICES

Recommendation on Licence Extension
The audit team concludes that management of the Big Pic Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence held by Marathon Pulp Inc. Forest sustainability is being achieved, as assessed through the Independent Forest Audit Process and Protocol. Had the SFL holder been in a financial position to meet its forest management obligations on the unit, the audit team would have recommended the Minister extend the term of Sustainable Forest Licence # 542004 for a further five years.
Recommendations Directed to SFL Holder / OMNR District
Recommendation # 3: The District Manager should ensure that the FMP Steering Committee gives adequate support to the planning team to meet its responsibilities in the development of future forest management plans. **Recommendation #4:** In the 2017 FMP, the planning team should clearly identify each scoping run and include a digital copy of each scoping run, the natural benchmark run, and the proposed management strategy as required by Appendix III of the 2004 FMPM. The analysis package should also clearly describe the specific inputs and how these specific inputs were defined for each scoping run. The analysis package or plan text should clearly document progress in checkpoint achievement. **Recommendation # 5:** In the 2017 FMP, existing reserves should be classified as reserved area, rather than "not available forest", in the planning and base model inventories as per the planning inventory technical specifications. The planning team should clearly document in the analysis package and FMP text the basis for the existing reserve areas in SFMM. **Recommendation # 6:** In the development of future forest management plans, actual implemented renewal rates should be more consistent with the modeled renewal rates in order to support the required

renewal according to the preferred management strategy. Planned renewal expenditures and revenues should be compared to actual levels in future ARs.

Recommendation # 7:

The SFL holder should ensure that logging operations are appropriately timed and that operators are trained and supervised in order to minimize rutting during harvest operations.

Recommendation # 8:

The District OMNR and the SFL holder must ensure that adequate records are maintained to enable the assessment of the "silvicultural effectiveness" of renewal treatments on all forest unit sites (with particular emphasis on SB1 forest unit sites).

Recommendation # 9:

The SFL holder must ensure that conifer renewal sites are monitored to ensure timely tending interventions and ensure that the planned tending strategies are appropriate for the site/stand conditions on the treatment area.

Recommendation # 10:

The SFL Holder should critically review and evaluate the effectiveness of its "*Interim Debris Management Strategy*" to ensure that the adopted management procedures are implemented and that slash management techniques are satisfactorily achieving the strategy goals and objectives.

Recommendation # 12:

The SFL holder must ensure that Annual Reports meet all FIM and FMPM requirements with respect to content and submission deadlines. The outstanding requirement to re-submit the 2006-2007 Annual Report must be immediately addressed.

Recommendation #13:

The Wawa District must ensure, on an annual basis, that sufficient financial and human resources are available to satisfactorily meet Core Task requirements and obligations for Silvicultural Effectiveness Monitoring.

Recommendation # 14:

The SFL holder and OMNR District must ensure the Action Plan responding to IFA recommendations is prepared and submitted within the required time.

Recommendation # 16:

The SFL holder must address the backlog in area requiring free-to-grow survey.

Recommendations Directed to Corporate or Regional OMNR

Recommendation # 1:

Corporate OMNR and the Regional Director should jointly ensure that funding is available in the Wawa District for the Manitouwadge LCC to function throughout the duration of a FMP.

Recommendation # 2:

With reference to the direction and intent of OMNR's Forest Management Class EA approval and FMPM direction, Corporate OMNR should carefully review the costs and benefits associated with the amalgamation of LCCs in response to the amalgamation of forest management units.

Recommendation # 11:

The OMNR Regional Director should ensure that sufficient staff resources are available within the Wawa District to meet forest compliance inspection obligations on the Big Pic Forest.

Recommendation # 15:

The OMNR Regional Director must ensure that District and Regional staff place an increased priority on the timing and quality of initial submissions, internal reviews and final approval of IFA Action Plans and Status Reports.

3.0. Introduction

This report presents the findings of an Independent Forest Audit of the Big Pic Forest (SFL # 542004) conducted by Arbex Forest Resource Consultants Ltd.[2] for the period April 1, 2004 to March 31, 2009. This audit assessed the forest management activities of Marathon Pulp Inc. (MPI), 686860 Ontario Ltd (Overlapping Licencee) and the Ontario Ministry of Natural Resources, Wawa District. MPI declared bankruptcy in February 2009 and PricewaterhouseCoopers was named as the Trustee.

All forest harvesting operations on the unit during the audit term were supervised by 686860 Ontario Ltd. (an affiliate of Buchanan Forest Product Ltd. (BFPL)) under a series of multi-year overlapping licences. Local contractors conducted logging operations. Prior to going into receivership in March 2009, BFPL was contracted to provide forest management services to 686860 Ontario Ltd. GreenForest Management Inc. received direction from 686860 Ontario Ltd. to act on its behalf for the IFA audit and to provide forest management services until March 31, 2010. The uncertain status of the licensing arrangement(s) (SFL holder and associated overlapping licences) on the Forest will need to be addressed by the OMNR to enable future forest management activities.

3.1. Audit Process

The Crown Forest Sustainability Act (CFSA) requires that Sustainable Forest Licences (SFL) be audited every five years by an Independent Auditor. The audit also applies to the Ontario Ministry of Natural Resources (OMNR), and all licencees on the SFL. The audit reviews the applicable Forest Management Plan (FMP) in relation to relevant provincial legislation, policy, guidelines and Forest Management Planning Manual (FMPM) requirements, including a review of field operations and required monitoring and reporting. The effectiveness of forest management activities is examined based on planned vs. actual results as verified through record examination and field sampling. The audit reviews whether actual results in the field are comparable with planned results and determines if they are accurately reported.

Procedures and criteria for the IFA are specified in the 2008-2009 Independent Audit Process and Protocol (IFAPP). The scope of the audit is determined by the OMNR. The audit term was April 1, 2004 to March 31, 2009. Forest Management Plans (FMPs) in the audit scope included the last 3 years of 2002-2007 FMP and the first two years of the 2007-2011 FMP.

[2] A list of the audit team members and their qualifications is presented in Appendix 6.

3.2. Management Unit Description

The Big Pic Forest is located primarily in the OMNR's Wawa District and Northeast Administrative Region. A small portion of the licence is in the OMNR's Nipigon District. For administration purposes, the Wawa District's Manitouwadge Area office is responsible for forest management on the entire Forest. The Nipigon District Terrace Bay Area office is responsible for all non-forest matters (e.g. fisheries, wildlife) within the Nipigon District portion of the forest. The communities of Marathon, Heron Bay, Caramat, and Hillsport, are located within the Forest. Manitouwadge is located to the east, just outside the boundary (Figure 1). The nearest large centre is Thunder Bay approximately 280 kilometers to the west.

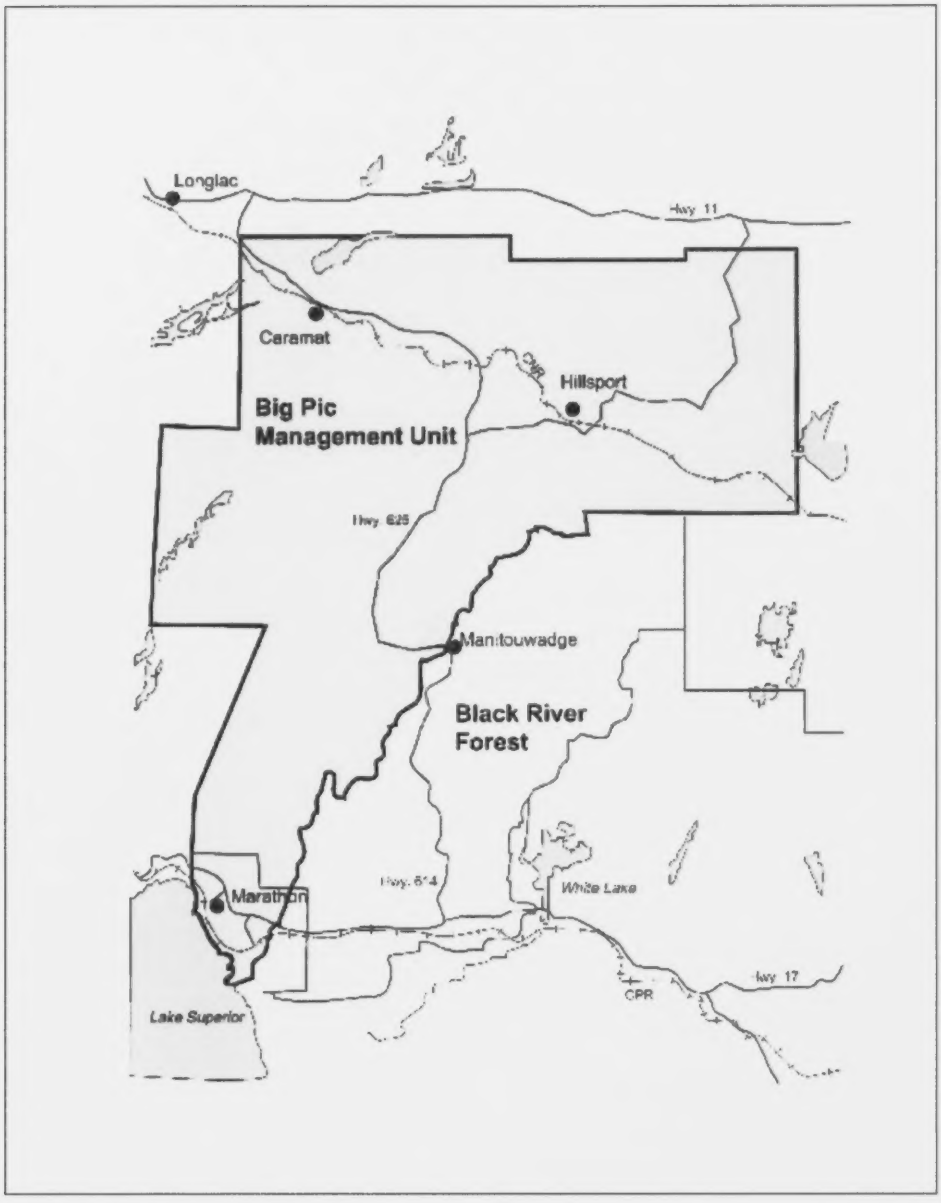

FIGURE 1. LOCATION OF THE BIG PIC FOREST.
Source: OMNR

There are five aboriginal communities located in or adjacent to the Big Pic Forest. These include the Ojibways of the Pic River First Nation, Pic Mobert First Nation, Ginoogaming First Nation, Long Lake Reserve 58 First Nation and the Constance Lake First Nation.

The Forest encompasses an area of 657,148 ha of which approximately 96% (638,133 ha) is classified as managed Crown Land. Table 2 provides an area summary of the managed Crown land by type.

TABLE 2. AREA SUMMARY OF MANAGED CROWN LAND BY LAND TYPE

Managed Crown Land Type	**Area (Ha)**
Non-Forested	33,158
Non-Productive Forest	29,108
Protection Forest[3]	10,804
Production Forest[4]	
Forest Stands	426,282
Recent Disturbance	121,184
Below Regeneration Standards[5]	17,396
Total Forested:	604,774
Total Crown Managed:	638,133

Source: FMP-1 Table: Management Unit Land Summary in Hectares (2007 FMP)

Forest Cover Types

The Forest is situated in the Boreal Forest Region and is dominated by lowland conifer and mixedwood cover types. Figure 2 presents the proportional representation of forest units.

[3] Protection forest land is land on which forest management activities cannot normally be practiced without incurring deleterious environmental effects because of obvious physical limitations such as steep slopes and shallow soils over bedrock.
[4] Productive forest is land at various stages of growth, with no obvious physical limitations on the ability to practice forest management.
[5] This area is deemed to have low stocking due to site limitations, natural disturbance or past forest operations.

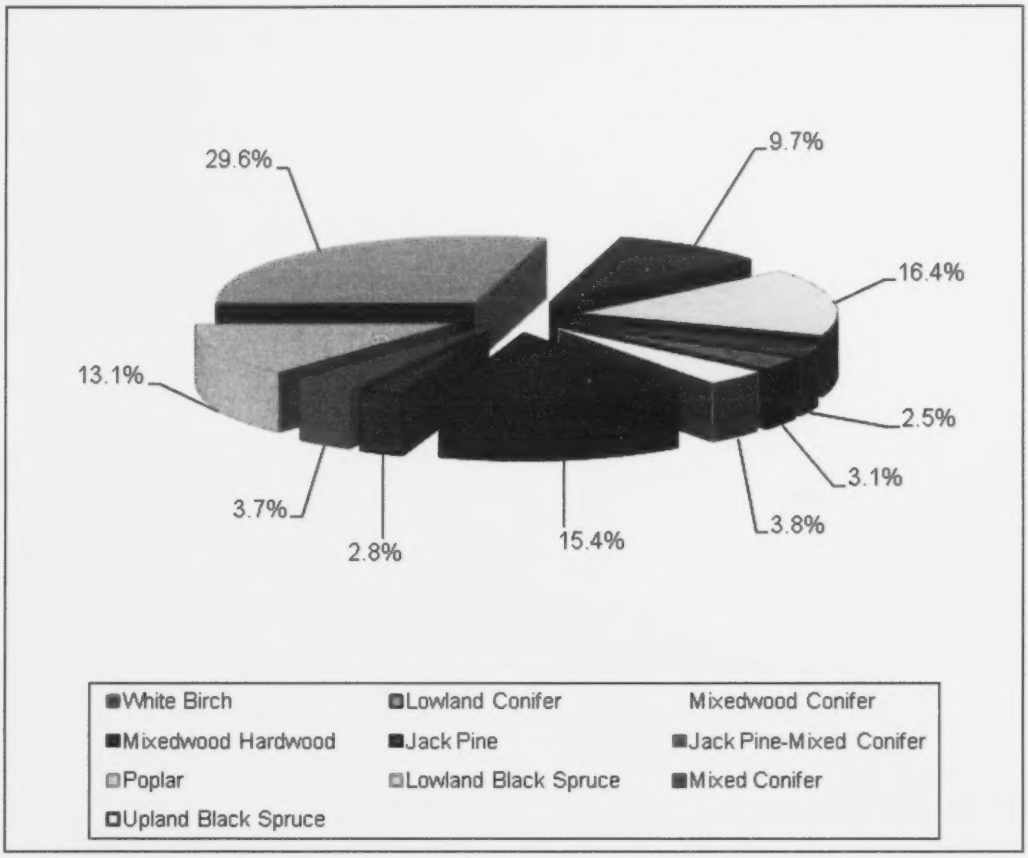

FIGURE 2. PROPORTIONAL REPRESENTATION OF FOREST COVER TYPES ON THE BIG PIC FOREST
Source: 2007 FMP

Age Class Area Distribution

Figure 3 presents the age class area distribution. There is a significant area within the 1-20 (30%) and 121 plus (26%) age classes. The large area of immature forest is the result of past natural disturbances (predominately fire) and harvesting activities. Harvesting inaccessibility and effective fire suppression programs have retained much of the overmature forest on the unit. As stands continue to age and breakup there will be declining volume yields and increased potential for wild fires. As a result, a wood supply shortfall is anticipated over the next forty years due to aging and stand composition changes.

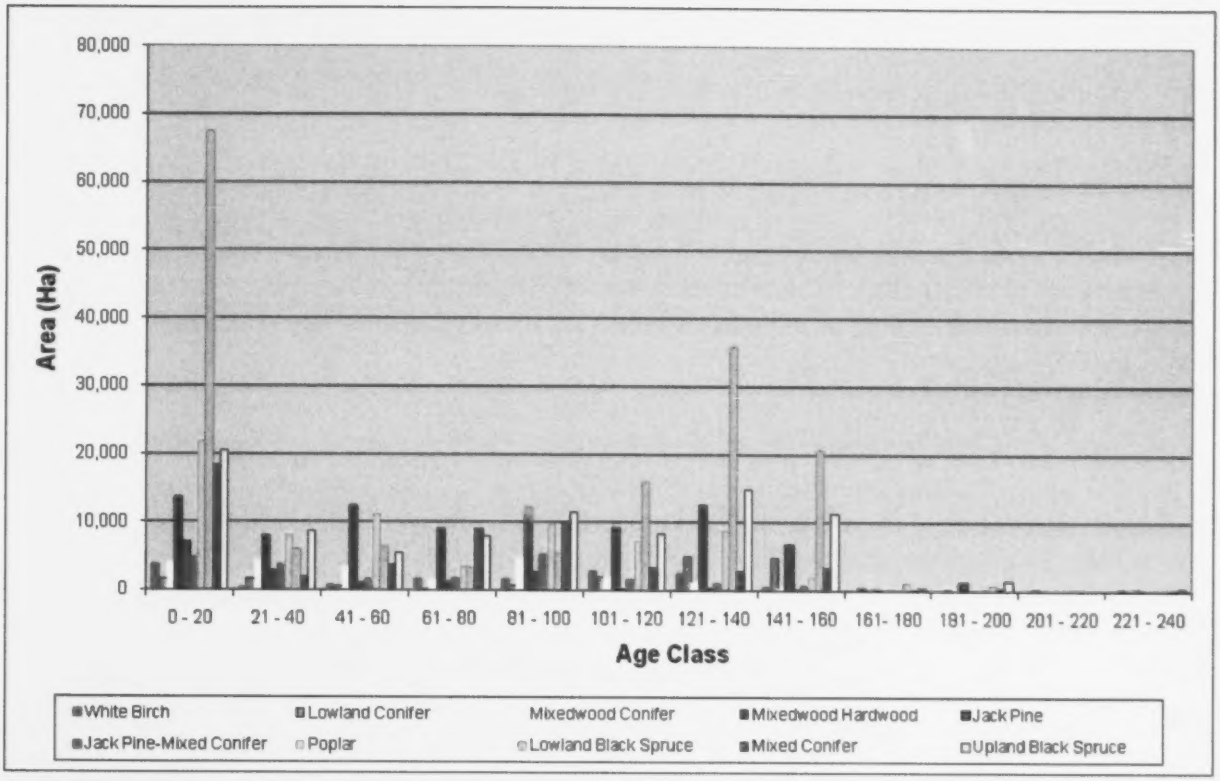

FIGURE 3. AGE CLASS AREA DISTRIBUTION BY COVER TYPE.
Source: 2007 FMP

The Forest supports a diversity of wildlife species including moose and black bear. It is also home to the woodland caribou which is classed as a threatened species[6] and the grey owl and bald eagle which are listed as "species of concern".

3.3. Current Issues

Status and Capacity of the SFL holder

The bankrupt status of Marathon Pulp Inc. (SFL holder) significantly complicates the response to any IFA recommendations directed at the SFL holder and the continued delivery of SFL forest management obligations on the unit. GreenForest Management Inc. had received direction from 686860 Ontario Ltd. to act on its behalf for the delivery of the audit. A verbal contract (pending signing of a written contract) between 686860

[6] By the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and Species At Risk Ontario (SARO)

Ontario Ltd. and GreenForest was in place to deliver other forest management services and activities (e.g. preparation of ARs, AWSs, etc.) until March 2010[7].

Natural Regeneration of the Lowland Spruce Forest Unit

A perceived lack of natural regeneration of the lowland spruce forest unit (SB1) on Ecosites 12 and 13 has been a recurrent concern of OMMR staff, based primarily on observations and the collective experience of staff. GreenForest staff indicated that natural regeneration on lowland spruce forest units was a problem on a limited number of specific ecosites but was not a significant regeneration problem across the unit. The issue is discussed in Section 4.8 and a recommendation (# 8) is provided.

Slash Management

Slash and logging debris management poses challenges on the unit. GreenForest had developed a slash and debris management strategy which delineated zones for various slash and debris management treatments[8]. Treatments identified in the strategy range from use for bioenergy feedstock, to piling and burning, to the creation of plantable rows within linear slash accumulations. The issue is discussed in Section 4.4 and a recommendation (#10) is provided.

Vintage of the Forest Resource Inventory (FRI)

The most recent FRI was completed in 1989. This inventory was not based on eco-sites. Approximately 20% of the stands in the inventory originate from the 1976 photo interpretation that was updated for height and age only. Issues associated with the inventory include:

- the accuracy of stand information,
- a lack of delineation of Area of Concern (AOC) reserves, inoperable areas and areas bypassed by operations,
- the aging of forest stands and depleted areas,
- problems with the description of stands affected by spruce budworm,
- the tracking of forest unit changes through time.

Age Class Area Imbalance

The current age class area imbalance on the Forest indicates that there will be a future wood supply shortfall and declining habitat for some wildlife species.

[7] Communications with GreenForest Management Inc. senior staff.
[8] GreenForest Management Inc. Interim Strategy for Debris Management. Big Pic Forest 2009-2010. June 2009.

Lack of Markets for Hardwood (Suspended Blocks)

There are a significant number of harvest blocks which have been "suspended" to facilitate the removal of the hardwoods should markets improve. Some of the suspended blocks have been open for a number of years and have harvested wood that has been left "in the bush". The issue is discussed in Section 4.4.

Scheduling of Tending

The lack of markets has created problems for the timely delivery of silviculture and other associated forest management operations. A recommendation (# 9) related to tending challenges posed by residual hardwood cover is provided. Sites with a clay or silt component are highly competitive and timely tending is necessary to control competing vegetation to ensure the establishment of a conifer crop species. Tending requirements are frequently more pronounced on blocks harvested under a second-pass system where a hardwood overstory may persist as a seed source for an extended time in anticipation of improved markets. The issue is discussed in Section 4.4 and a recommendation (# 9) is provided.

Assessment of Silvicultural Success

The evaluation of a trend in forest unit transitions is difficult to complete on the Big Pic Forest because of the age of the current FRI (inaccuracies in initial stand descriptions), gaps in past reporting (silvicultural intensity/SGR/FOP on harvested/disturbed sites), and a lack of qualitative data. These shortcomings complicate the evaluation of trends in forest unit transitions. Without this information the determination of "regeneration" success vs. "silvicultural" success is not possible. A recommendation is provided to address this concern (#8).

3.4. Summary of Consultation and Input to the Audit

Details on public consultation and input are provided in Appendix 4. Public notices and an invitation to provide comments and/or complete a survey on the Arbex website were placed in the Manitouwadge Echo and the Marathon Mercury. A random sample of 35% of the individuals and organizations listed in the 2007 FMP mailing list were sent a letter and a survey questionnaire requesting input to the audit process. All First Nations (FNs) with an interest in the Forest were contacted by mail with an invitation to participate and/or express their views on the management of the Forest during the audit term. Follow-up interviews and meetings were held with individual FN representatives.

During the field audit the audit team attended a special meeting of the LCC, and the LCC chairperson participated in the field audit.

GreenForest Management Inc. staff (representing 686860 Ontario Ltd) and OMNR District and Regional staff with responsibilities on the Forest participated fully in the field audit and/or were interviewed by the audit team.

4.0. Audit Findings

4.1. Commitment

The commitment principle is deemed to be met since during the audit term the Big Pic Forest was certified under the Forest Stewardship Council certification standard. This certification was suspended with the bankruptcy of MPI. GreenForest Management Inc. has been retained by 686860 Ontario Ltd. to provide forest management services related to its contractual obligations to MPI for the delivery of forest management services on the unit until March 31, 2010. The status of the SFL and overlapping licences arising from the bankruptcy of MPI must be resolved to ensure continued forest management activities after March 31, 2010.

4.2. Public Consultation and Aboriginal Involvement

Local Citizens Committee

The Manitouwadge Local Citizens Committee (LCC) was involved in all aspects of forest planning and monitoring of operations. Its Terms of Reference (TOR) had been regularly updated and the Committee membership represented a complete range of interests, including First Nations.

We were concerned that the LCC did not meet for an extended period of 9 months during the audit term. The LCC informed us that the suspension of meetings was because the District OMNR was directing its LCC funding to Committees that were actively engaged in FMP planning. OMNR District staff confirmed that it's support funding was prioritized to support FMP development. The District has responsibility for 6 FMPs and our investigations indicated it has limited funds to support numerous LCCs. Despite funding constraints, the LCC members felt the Committee's responsibilities extended to activities well beyond the development of the FMP. We concur with this assessment and provide Recommendation # 1 to address this issue.

LCC members also expressed concern about the recent amalgamation of the Terrace Bay and Manitouwadge LCCs in anticipation of the amalgamation of the Big Pic, Black River and Pic River-Ojibwa Forests. Their concern was that the much larger land base made it impossible to provide knowledgeable, local input on forest management issues. The location of meetings for the amalgamated LCC (in Marathon) also required all members to travel considerable distances to attend meetings. LCC representatives felt

this would make recruiting and maintaining members more difficult. Our assessment is that the amalgamation of LCCs in conjunction with forest management unit amalgamations does not meet the intent or the direction of the FMPM. We provide a recommendation to address this concern (See Recommendation # 2).

Aboriginal Involvement in Forest Management Planning

First Nations (FN) on or adjacent to the Forest all received the appropriate notices required by the Forest Management Planning Manual (FMPM) within the correct timeframes. Representatives of the FNs indicated that their full involvement in FMP planning was hampered by a lack of funding and staff resources.

The Pic River and Pic Mobert FNs participated in the forest management planning process and the development of Background Information Reports and values maps. Both First Nation communities hosted community meetings to review the draft 2007 FMP.

The OMNR produced annual Condition 34[9] reports that documented efforts by both the OMNR and Company to engage and assist the FNs in forest management planning and operations. Our assessment is that IFAPP requirements related to Aboriginal consultation and involvement in the planning process had been met.

4.3. Forest Management Planning

Planning team composition and expertise was sufficient to meet its responsibilities. Membership on the team included foresters, biologists, planners and other professionals as well as members from two First Nations, the forest industry, and the Local Citizens Committee. The team was appointed by the District Manager and operated according to an approved Terms of Reference. A Steering Committee was appointed to assist with the development of the plan.

Interviews with planning team members, other OMNR staff and a review of planning team minutes indicated that the planning team was effective in meeting its responsibilities. There were some areas however, where improvements are warranted:

- There were difficulties in defining roles and assembling membership of the Planning team which resulted in the Terms of Reference not being approved by the Regional Director prior to the First Public Notice of the Consultation process.

[9] Condition 34 from the 2003 Class Environmental Assessment requires OMNR District Managers to conduct negotiations with Aboriginal peoples to identify and implement ways of achieving more equal participation in the benefits provided through forest management planning.

- The FMP Steering Committee did not meet during the planning phase for the 2007 FMP. The FMP and the 2007- 08 Annual Work Schedule (AWS) were approved late. This late approval delayed the commencement of forest operations. We concluded that the Steering Committee should have met to help ensure that the FMP proceeded on schedule and that the planning team had adequate resources to complete it on time. Recommendation # 3 is provided to address this concern.

The FMP met all content requirements for environmental references and description of the resource base as per the 2004 Forest Management Planning Manual (FMPM). The age of the FRI created several challenges during the development of the FMP and was a contributing factor in the delay of Regional OMNR approval of the planning inventory. Current forest condition, other forest resources such as wildlife, and old growth, were adequately identified as were the potential impacts of forest operations. A comprehensive social and economic description was prepared although the information for First Nations had to be supplemented by interviews with community economic development officers.

The aggregation of similar forest species and stands into "forest units" and the choice of wildlife species and related habitat classifications were appropriate for planning and operational purposes. The approaches used for the provision of caribou habitat and estimation of forest natural succession pathways were appropriate.

The scoping exercise used to develop the Preferred Management Strategy (PMS) was well done. Scoping was used to assess the impacts of individual vegetation and habitat constraints, and also to define a management strategy to determine harvest volumes and provide harvest and renewal schedules that were operationally feasible. We are concerned, however that more detail on the various scoping runs was not made available in the FMP documentation. A recommendation is provided (Recommendation # 4).

Our review of the Sustainable Forest Management Model (SFMM) modeling process identified two issues;

- The inclusion of accumulating reserves in the area of existing Area of Concern (AOC) reserves (Recommendation # 5).
- The use of higher than actual renewal rates for the first three years of the Plan (Recommendation # 6).

The adoption of higher renewal rates in the SFMM implies that the FMP would not provide adequate funds for forest renewal as required by the PMS. However, in practice the minimum balance was maintained because the higher than planned level of harvest associated with wildfire salvage generated more renewal funds than anticipated.

The planning team incorporated the desired forest and benefits (defined by the LCC and the planning team) into a suite of practical plan objectives. The plan objectives met the requirements outlined in the FMPM.

The FMP included a thorough assessment of the Long Term Management Direction proposed by the planning team. Quantified targets were identified for the plan objectives where feasible, and eligibility criteria for harvest were identified. The social and economic assessment of the management strategy was adequate, dealing with wood supply and related employment, as well as other uses of the forest such as recreation and remote tourism.

Our review of planning for implementation of the management strategy found that areas selected for operations and related Areas of Concern were appropriate. Our review of documents, discussions with the Company and OMNR staff, and interviews with tourism operators indicated that resource-based tourism values were appropriately addressed in the forest management planning process.

Harvest renewal and tending activities were consistent with the management strategy, as were planned levels of financial support. Planning for roads was appropriate.

We note that the District did not produce Annual Compliance Operating Plans (ACOP) for 2007/08 and 2008/09. We were informed by the OMNR Forest Management Branch, that while a need for compliance planning has always existed, the procedures for developing ACOPs had never received approval. There is, therefore, no official requirement to produce an ACOP. Our experience gained from a number of Independent Forest Audits across the province is that a formal planning process does increase the effectiveness and efficiency of forest compliance operations. We do not provide a recommendation in this instance because full implementation of the 2008 Forest Compliance Handbook will provide renewed direction for compliance planning.

During the process of plan submission and approval, alterations required by OMNR to the draft plan were appropriate, and although the plan was submitted late, all formal approvals were in place. Plan amendments, AWS revisions and forest operations prescriptions (FOPs) were consistent with the FMP, properly certified and met the requirements of the 2004 FMPM.

4.4. Plan Assessment and Implementation

Harvest

During the audit term, 24,104 ha were harvested under normal operations and 6,043 ha were harvested by salvage operations. Overall, harvesting (normal and salvage operations) overachieved planned area and volume targets during the 2002-2007 FMP term. This overachievement was due to salvage operations associated with the Wawa # 13 and # 24 fires. In the final year of the 2002 plan term and the first two years of the

2007 FMP, harvest was below planned levels (55% of planned harvest area) as a result of the economic downturn in the forestry sector. Conifer dominated forest units were harvested at or near planned levels, while hardwood utilization was below planned targets due to poor markets.

During the field audit, we visited 11% of the area harvested during the audit term. All inspected sites were approved for operations in Annual Work Schedules and harvest prescriptions were implemented in accordance with the Silvicultural Ground Rules.

During our site inspections, we noted areas of significant rutting which had resulted in localized site damage on a few lowland sites. This rutting was largely attributed to conducting operations when the ground was wet in order to meet seasonal market demands for wood and appeared to be associated with logging later years of the audit term. A recommendation is provided to address this concern (Recommendation # 7).

Due to the lack of markets for some hardwood and conifer species, a significant number of harvest blocks have remained open with only the currently marketable species being harvested and other species retained for future harvest (should markets become available). In some circumstances, harvested timber (particularly hardwoods) had been harvested but the timber was left on site. The adoption of this "second-pass" harvest system has created problems with respect to controlling vegetative competition and the delivery of other silvicultural activities (See Recommendation # 9).

Renewal, Tending and Protection

For the 2002 FMP term, planned renewal and tending activities underachieved planned targets (82% of planned) due to the cancellation of the silvicultural program as a result of wildfires and the inability to achieve planned harvest targets. During the 2007 FMP term there has been an underachievement of the planned targets due to reduced harvest levels. Forestry Futures funding was utilized to address silvicultural requirements arising from Wawa Fire # 13 and # 23. Activities undertaken included mechanical and chemical site preparation, planting and aerial tending. Some 9,139 hectares were treated. We concluded that the level of silvicultural activity was appropriate for the level of harvest (including salvage operations) during the audit term.

Over the audit period there was also higher dependency on natural renewal than planned. The increased level of natural renewal was attributed to suitable site conditions for natural regeneration being present after harvesting. The total area renewed is generally in balance with the area harvested for the audit term, although some delays in reporting associated with the adoption of the second-pass silvicultural system are occurring.

Regeneration surveys of areas harvested in the 1992-1997 period indicate that 88% of the area had been declared as successfully renewed (i.e. regeneration success). The evaluation of a trend in forest unit transitions is difficult to complete for a number of reasons. These included the age of the current FRI (inaccuracies in initial stand

descriptions) gaps in past reporting (silvicultural intensity/SGR/FOP on harvested/disturbed sites); and a lack of qualitative data. These shortcomings complicate the evaluation of trends in forest unit transitions. Without this information the determination of "regeneration" success versus "silvicultural" success is not possible.

The field audit sampled 11% of renewal, 11% of site preparation and 10% of tending activities conducted during the audit term. All inspected activities inspected were approved in the AWSs and were in accordance with the applicable Silvicultural Ground Rule (SGR) and Silvicultural Treatment Package (STP). Renewal of the lowland black spruce forest (SB1) unit on Ecosites # 12 and # 13 was identified as a concern during the audit. Our observations relative to the renewal of SB1 forest unit are discussed in Section 4.8.

The management of slash poses a management challenge. 686860 Ontario Ltd. had prepared a slash management plan which allocated slash treatments based on economic zones for biomass production[10] and provided alternatives to slash piling and burning such as the creation of plantable rows within roadside slash accumulations and the incorporation of slash into roadbeds. While we observed areas where these strategies had been implemented, we also observed many areas where slash treatments had not been implemented (slash piling did not occur in 2005-2006), or had been delayed in anticipation of future biofuel markets. The delay in treating was a concern since the utility of the piles for biofuel degrades with time and many of the piles had been in situ for a number of years. Overall there was a loss of productive forest land that could have been made available for renewal treatments. A recommendation (# 10) related to slash management is provided.

Vegetative competition, particularly in areas with clay, loam or silt soils poses a significant problem for the renewal of conifer species. Our field observations indicated that monitoring and timely tending are required on those sites in order to ensure adequate stocking to conifer species. To address the weak market for some species and products, a second-pass silvicultural system was implemented. Under this approach, unmarketable hardwood and conifer species are retained within the harvest block in anticipation of future harvest. The system makes it difficult to control the ingress of hardwoods (due to seeding from residual trees) and poses challenges for aerial tending due to the persistence of canopy cover which intercepts the chemical treatment. Our assessment is that the forest manager needs to consider alternative procedures for the delivery of the tending program (i.e. ground-based treatments). A recommendation (#9) is provided to address our concern.

No pest protection activities were undertaken during the audit term.

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10 Wood biomass could become important for power, liquid fuel and chemical production and may compete with fossil fuels for a broad range of uses.

Access

Forest access (including water crossings) was well planned and constructed in accordance with the FMPs, AWSs and forest management guidelines. Areas listed in the "*Forest Roads and Maintenance Agreement*" were inspected as per IFAPP requirements and no non-conformities were noted.

Renewal Support

Renewal support during the audit term consisted of seed collection, tree improvement and nursery stock production. The level of renewal support was sufficient for the scale of the renewal program.

4.5. System Support

Human Resources

The IFAPP human resources principle is deemed to be met since the Big Pic Forest was certified by the Forest Stewardship Council (FSC) during the audit period. The certification was suspended with the bankruptcy of MPI in 2009.

We do have concerns about OMNR staffing levels associated with compliance and monitoring and provide recommendations to address this issue (Recommendations # 11 and # 13).

Document and Record Quality Control

During the audit, GreenForest was utilizing the office, computer systems and record filing and documentation systems of BFPL. This record control system is sophisticated and its Environmental Management System (EMS) ensured it was updated on a regular basis during the audit term. FSC certification requirements also included the maintenance of a quality document and record control system.

The Manitouwadge OMNR was maintaining a good quality record and document control system. Our information requests were responded to quickly and effectively and appropriate back-up processes were in place.

4.6. Monitoring

District Compliance Planning and Associated Monitoring

OMNR averaged approximately 18 annual inspections for the first 3 years of the audit term and approximately 5 inspections for each of the last two years. This decline in inspections was precipitated by the loss of 3 technician positions at the Manitouwadge

Office coincidental with the downturn in the forest industry. One technician currently has compliance responsibility for the Forest. This level of staffing will be inadequate should industrial activity increase with an economic recovery (See Recommendation # 11).

Silvicultural Effectiveness Monitoring (SEM)

OMNR policy requires that SEM monitoring be undertaken to ensure the sustainability of Ontario's forests. Wawa District Core Task # 1 required that 10% of the area assessed as free-to-grow be assessed for SEM purposes. Staffing shortages, inadequate financial resources and the timing of funding availability (money was not available during the summer) limited the delivery of the program to only 3.3% of the identified FTG Core Task requirement. A recommendation (# 13) is provided to address this shortcoming.

SFL Holder Compliance Planning and Monitoring

Industry inspections were appropriate for the level of activity on the unit. Although there was an average 40 percent reduction in inspections for the 2007-08 and 2008-09 periods, the level of inspections was appropriate for the level of forest management activity.

Harvesting currently is being conducted by Black River Logging Inc. (BRLI). It is responsible for its own compliance inspections but does not have the authority to approve those inspections. The inspections are approved by GreenForest staff through an Enhanced Compliance Arrangement between 686860 Ontario Limited and MPI. The number of inspections completed was appropriate for the level of harvest activity and approved compliance reports met timing and format requirements.

There were no exceptions in the 2007-2017 FMP which required monitoring.

4.7 Achievement of Management Objectives & Sustainability

At the management unit level, the FMPM has five measurable criteria with associated indicators that are used as indicators of forest sustainability. The criteria and our assessment of the status of related indicators are summarized in Table 3.

TABLE 3. SUMMARY OF ACHIEVEMENT OF FOREST SUSTAINABILITY INDICATORS

Forest Sustainability Criteria	Met (yes/no/ partial)	Audit Team Comments
Biodiversity	Yes	The 2002 and 2007 Forest Management Plans contained strategies which balanced Plan objectives. Both Plans contained a clear objective of moving toward vegetation types and age distributions of a fire driven boreal forest. We note some concern from OMNR about the regeneration of lowland black spruce. A recommendation is provided to address the concern. Management strategies are adequate to sustain long term marten and caribou habitat. Habitat for species at risk and provincially and locally featured species is also maintained. Forest operations were consistent with guidelines designed to emulate natural disturbance patterns.
Forest Condition and Ecological Productivity	Yes	No substantive changes in forest structure and/or composition had occurred during the assessed term. All forest condition trends have met acceptable levels as prescribed in the FMP.
Multiple Benefits to Society	Partial	The Forest Management Plans contained objectives to provide social, economic, recreational and economic benefits from the forest. Both plans projected a substantial drop in spruce, pine and fir availability in the medium term (~20-60 years) due to the age class area structure on the Forest. Projected timber availability does approach historic levels in the long term as younger age classes mature. Actual harvest met industrial demand for the 2007 plan period; harvest was reduced in 2007-08 and 2008-09 due to a severe downturn in market demand.

		Our field inspections and interviews found that operations were in compliance with prescriptions for the protection of aboriginal and tourism values natural resource features, land uses and values dependent on the Forest. We note that combined OMNR and Industry access and harvest inspections (includes AOCs, water crossings, road construction) made up approximately 68% of the total compliance inspections (391) conducted during the audit term. For the period there were only 10 Not-in-Compliance (NIC) reports associated with AOCs. These were deemed as minor by the OMNR.
Soil and Water Conservation	Yes	Field inspection indicated that AOCs designed to protect waterbodies for fisheries management purposes were being implemented properly. Combined industry and OMNR inspections related to site impacts and environmental protection had an In-Compliance rate of approximately 96%. We noticed rutting on some lowland sites during the field audit. A recommendation is provided to address this issue. No other significant site damage was observed.
Accepting Society's Responsibility for Sustainable Development	Yes	Total Production Forest area was reduced by 7% between the 1997 and 2007 plan periods due to the creation of four conservation reserves. Both FMPs provided economic opportunities to First Nations. Aboriginal communities were contacted at least 6 months prior to the Invitation to Participate and were kept informed throughout the planning process. Opportunities were provided for FNs to participate in the identification of aboriginal values. A planning team target of having First Nation attendance at 75% of its meetings was not met as a result of scheduling difficulties and competing

		priorities for First Nation representatives. A letter from the LCC indicated their general support for the FMP.

At the time of the audit, the 2006-2007 Year 10 Annual Report required re-submission by the SFL holder and as such, had not received OMNR approval (see Recommendation # 12).

The Comparison and Trend Analysis Report[11] was prepared by GreenForest on behalf of the SFL holder and 686860 Ontario Ltd. The purpose of the report is to examine trends in planned vs. actual forest operations over time in order to provide a comparison of the current state of the Forest relative to its historic state. The report was prepared in accordance with the requirements of the IFAPP. The following trends are reported:

- For the 1997-2002 term the area harvested was below planned levels. Harvesting exceeded planned area and volume targets during the 2002-2007 FMP term due to harvest from fire salvage operations. In the final year of the 2002 plan term and the first two years of the 2007 FMP term, harvest levels were below planned levels due to the lack of markets for some species and products.
- Silvicultural activities exceed planned levels from 1997-2002. For the 2002-2007 FMP term silvicultural activities were below planned levels as a result of the cancellation of the silvicultural program due to wildfires and the economic downturn in the forest sector.
- Between 1997and 2002, actual regeneration (annualized) significantly exceeded planned levels (5,513 ha planned vs. 9,400 ha treated). During 2002-2007, regeneration activities achieved 99% of planned levels. There has been a greater dependence on natural regeneration than planned between 1997 and 2007 (5,871 ha vs. 1,720 ha planned (1997-2002) and 3,215 ha vs. 2,691 ha planned (2002-2007)).
- Between 1997 and 2002, annualized site preparation activities met planned targets with 3,584 ha treated vs. 3,468 ha planned. For 2002-2007, the actual annualized area treated by site preparation achieved only 50% of the planned level (1,708 ha treated vs. 3,420 ha planned).
- Between1997 and 2002, annualized tending activities exceeded planned levels with 2,732 ha treated vs. 1,500 ha planned. During 2002-2007 the actual annualized area treated by tending achieved 69% of the planned level (2,392 ha treated vs. 3,437 ha planned).
- Hardwood utilization has historically been below planned levels.

[11] Comparison and Trend Analysis of Planned vs. Actual Forest Operations Report.

- Eighty-eight percent of the area surveyed for regeneration success between 2002 and 2007 was declared successfully regenerated. Forest units from the 1997-2002 FMP are inconsistent with forest units used in subsequent FMPs making assessments of "silvicultural' success difficult or inconclusive.
- Over the three assessed terms, there was little change in the area of the production forest.

The audit team concluded that none of the reported trends indicated an imminent threat to forest sustainability. Between 1997 and 2008 the area of production forest remained constant and harvest, tending and renewal activities were consistent with sustainable management of the Forest. However, if the lack of information for the assessment of "silvicultural" success is not addressed, and if harvest levels continue to decline forest sustainability may be threatened.

Our field observations and other data on silvicultural success (i.e. OMNR SEM data) indicate that forest unit transitions are not an immediate concern. Regeneration surveys and our field observations indicate that much of the Forest has been successfully renewed. However, we are concerned that data and information required to discern trends in forest unit transitions is inadequate. The SFL holder and the OMNR are required to confirm that forest units are being maintained and to assess the effectiveness of SGRs/STPs in achieving silvicultural targets. Recommendations in this audit direct the parties to address requirements related to the tracking, monitoring, and reporting of silvicultural effectiveness.

We are also concerned with the current trend of declining harvests levels. Should this trend persist, it will become increasingly difficult to achieve the long term management direction of the FMP.

4.8. Contractual Obligations

Appendix 3 provides a general overview of the SFL holder's adherence to its licence obligations. As a BFPL affiliate, 686860 Ontario Ltd. utilized the BFPL record keeping and reporting systems, staff resources, and EMS.

The IFAPP requires that the SFL holder and OMNR prepare an Action Plan within 2 months of receipt of the final audit report. The Action Plan for the 2004 IFA was submitted in November, 2005 approximately 8 months late. Regional Director approval was received approximately 1 year later in November, 2006. The delay in submitting the Action Plan was excessive and a recommendation is provided (#14).

A Status Report must be prepared within 2 years following approval of the Action Plan unless otherwise directed by the Minister. A partial Status Report which did not include SFL-related recommendations was submitted in November 2008. Over the next 10

months there were a number of reviews and re-submissions. Regional Director approval of the report occurred in September 2009. We understand that the uncertainty associated with the bankruptcy of MPI and the insolvency of BFPL contributed to the delays and incompleteness of the report, however, responses to IFA recommendations require higher priority. Recommendation # 15 is provided to address this concern.

Silvicultural Standards and Assessment Program

During the audit term, 686860 Ontario Ltd. and the OMNR implemented silvicultural monitoring through a number of programs and initiatives. Field monitoring activities included assessments of regeneration success, free-to-grow surveys, and assessments of vegetative competition. Assessments of the effectiveness of planned silvicultural operations were also undertaken (e.g. assessment of tending treatments and site preparation, etc.).

This audit identified a number of issues related to the monitoring of silviculture activities. These included, a backlog in area requiring free-to-grow survey, the assessment of natural renewal on SB1 forest units, difficulties in assessing FTG data for "silvicultural success", and OMNR shortcomings in the delivery of its Silvicultural Effectiveness Monitoring (SEM) Program.

There is a current backlog of 14,846 ha requiring free-to-grow survey. Twenty-four percent of this area is related to pre-1995 harvests. We note that during the audit term FTG surveys were only conducted in 2005 and 2006. A recommendation (# 16) is provided to address this backlog issue. There is also a requirement for FTG survey information to be formatted in a manner that facilitates the evaluation of silvicultural effectiveness (see Recommendation # 8).

Concern with respect to the natural renewal (extensive treatment) of the SB1 forest unit has been a recurring theme in past certification and IFA audits. Quantitative data on the status of natural renewal on these sites is either lacking or has not been compiled in a format that readily facilitates analysis. The SFL holder and OMNR are obligated to confirm that forest units are being maintained on the unit and to assess the effectiveness of SGRs/STPs in achieving silvicultural targets.

Under its licence obligations, the SFL holder had a commitment to survey and report on 11,841 ha of lands classified as XYZ. Of this commitment, 11,173 ha had received silvicultural treatment or had been declared as free-to-grow. At the time of the audit, 688 ha had yet to be reported on in the 2009 AR with approximately 4 hectares scheduled for silvicultural treatment.

Annual Reports

While the requirements for the initial submission of Annual Reports were generally met during the audit term, several report re-submissions were typically required prior to OMNR approval. Most re-submissions met FMPM timing requirements with the exception of the 2005 AR which was re-submitted 7 months late. The 2006-2007 AR did not fully meet FIM or FMPM requirements/standards and re-submissions were required for accuracy or report completeness. The re-submission and final acceptance of the report was still pending at the time of the audit. Recommendation # 12 is provided to address our concerns related to annual reporting.

4.9. Conclusions and Licence Extension Recommendation.

Based on the findings of this audit, it is our opinion that the Big Pic Forest is currently in a sustainable condition as assessed through the IFAPP. This conclusion is based on our findings that:

- The selected management alternative in the 2002 FMP, the long term management direction in the 2007 FMP and their related management objectives are consistent with the attainment of forest sustainability.
- Appropriate information was available to support forest management planning efforts.
- Forest management planning activities adhered to FMPM requirements.
- Appropriate silvicultural ground rules were adopted and the silvicultural treatment packages were appropriate for observed field conditions.
- Areas of Concern were appropriately protected through proper planning and management prescription implementation.
- Forest management activities (e.g. harvest, renewal, tending) adhered to FMP requirements. Field operations, with the exception of those noted in this report, were implemented with minimal environmental degradation.
- Renewal operations are generally in balance with harvest operations.
- Free-to-grow assessments indicate that the forest is being renewed.
- Forest operations were compliant with the Crown Forest Sustainability Act (CFSA) and Forest Management Plans and approved manuals.
- None of the reported trends in the Comparison and Trend Analysis of Planned vs. Actual Forest Operations Report indicates an imminent threat to forest sustainability.

However, licencing issues associated with the bankruptcy of the SFL holder must be resolved to ensure the continued delivery of forest management and the successful achievement of FMP objectives.

We provide sixteen recommendations to address shortcomings in the delivery of the forest management program on the unit. Issues addressed through the audit recommendations include:

- A requirement to minimize site degradation caused by rutting.
- A requirement to ensure that slash and logging debris are proactively managed.
- A requirement to address the backlog of area requiring free-to-grow survey.
- A requirement to ensure that tending is appropriate to site/residual stand conditions and delivered in a timely manner.
- A requirement to ensure that the FMP planning team is effectively supported by the FMP Steering Committee.
- A requirement for the Wawa District to adequately resource and implement a Silvicultural Effectiveness Monitoring Program on an annual basis.
- A requirement for the OMNR to meet FMPM obligations related to the functioning of the LCC.
- A requirement for the SFL holder to satisfy FMPM and FIM requirements for the completion of Annual Reports.
- A requirement for the SFL holder to re-submit for approval the 2006-2007 Annual Report (Year 10 Annual Report).
- A requirement for the OMNR Regional Director to ensure that sufficient resources are available for compliance monitoring obligations.
- A requirement to ensure that reporting obligations for IFA Action Plans and Status Reports are met.
- A requirement to monitor and track forest renewal and ensure that FTG survey information is available in a format that facilitates the evaluation of silvicultural effectiveness.

We conclude that management of the Big Pic Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Licence held by Marathon Pulp Inc. Forest sustainability is being achieved, as assessed through the Independent Forest Audit Process and Protocol.

Had the SFL holder not been in receivership, we would have recommended the Minister extend the term of Sustainable Forest Licence # 542004 for a further five years.

Appendix 1

Recommendations and Best Practices

Independent Forest Audit – Record of Finding

Recommendation # 1

Principle: Principle 2; Public Consultation and Aboriginal Involvement

Criterion: Criterion 2.1.2; Local Citizens Committee purpose and activities.

Procedure(s):

Procedure 1; Review and assess whether the LCC met the purposes and conducted its activities in accordance with the applicable FMPM.

Background Information and Summary of Evidence:

The LCC was inactive from approximately May 2007 to February 2008. The LCC indicated to us that there were no meetings held because the OMNR had no funding to cover meeting costs (e.g. Committee member mileage, etc). The District OMNR explained that it has responsibility for 6 Forest Management Plans and that it's limited LCC support funding was prioritized to support active FMP development.

Discussion:

Condition 5 of the Forest Management Class Environmental Assessment directs the formation of a LCC. Condition 5 references a "*standing committee*" and the development of a Terms of Reference. The FMPM states "The *LCC will participate as an integral part of the preparation and implementation of the forest management plan*".

Our assessment is that the intent and direction of both documents is for the LCC to be involved throughout the development and entire life of a FMP. Adherence to its approved Terms of Reference and input into the "*implementation*" of the FMP (e.g. AWS, amendments) requires it to be active. Our discussions with OMNR staff revealed that support funding for the Big Pic LCC has decreased and that they will only be funded when there is a FMP being developed. LCC funding is initiated the Corporate level within OMNR and distributed by the OMNR Regional Director to the Districts.

Conclusion:

The FMPM requires LCC involvement in both the planning and implementation of FMPs. The members are all volunteers assisting the OMNR on their own time. In the absence of OMNR funding they should not be expected to pay their own expenses. It is our assessment that additional support funds are required to keep Big Pic Forest LCC functional.

Recommendation:

Corporate OMNR and the Regional Director should jointly ensure that funding is available in the Wawa District for the Manitouwadge LCC to function throughout the duration of a FMP.

Independent Forest Audit – Record of Finding

Recommendation # 2

Principle: Principle 2; Public Consultation and Aboriginal Involvement
Criterion: Criterion 2.1; Local Citizens Committee
Procedure(s):
Procedure 1. '…there is a single LCC covering the management unit or multiple LCCs or sub-committees exist. ...'

Background Information and Summary of Evidence:

The Manitouwadge and Terrace Bay Committees had been amalgamated in anticipation of the amalgamation of the Big Pic, Black River and Pic River Ojibway Forests. The LCC was concerned that committee members could not realistically gain the knowledge and experience on additional Forests required to carry out their functions in a knowledgeable manner. They felt they would be reduced to "rubber stamping" amendments and documents when they had no knowledge of local concerns or the associated geography.

They also made the point that attracting volunteers to the LCC has always been a difficult task. The fact that Committee meetings now required everyone from Manitouwadge and Terrace Bay to travel to Marathon (the mid-point and a 2 hour round trip) would make attraction and retention of members even more difficult.

The OMNR expressed some sympathy for the LCC concerns; however, the issue was being driven by available funding and the maintenance of one LCC would be less costly than two.

Discussion:

We note the FMPM refers to *"...local citizens representing a range and balance of interests…"* and *"…the MNR District Manager may establish additional local citizens committees, or sub-committees."* The wording indicates that the District Manager may increase the number of committees, presumably to ensure "*local citizens*" can perform knowledgably and effectively. The FMPM intent is clearly to ensure that LCCs operate on a land base where its members have some level of knowledge and experience. Expanding that area in response to financial concerns appears to be counterproductive with respect to "*local citizens*" input and the attraction/retention of members.

While we note that, the FMPM does provide the option for more than one LCC on a Forest and/or sub-committees, our concern is that the amalgamation of LCCs over 3 Forests may detract from the FMPM intent of receiving forest management input from local citizens representing a balance of interests.

At some point "*local citizens*" become simply visitors from distant communities. We understand that the Wawa DM has responsibility for the LCC(s). However, the movement away from the original intent of the 1996 and 2004 FMPMs should have corporate understanding and approval.

Conclusion:

Amalgamation of LCCs to respond to the amalgamation of Forests may make some short term economic sense, but threatens the requirement for local knowledge and expertise that comes from local citizens. As well, requiring citizens to travel from their home communities in order to volunteer would appear to undermine efforts to attract and retain LCC members. Any movement away from the original intent of the 1996 and 2004 FMPMs should have corporate understanding and approval.

Recommendation:

With reference to the intent of OMNR's Forest Management Class EA approval and FMPM direction, Corporate OMNR should carefully review the costs and benefits associated with the amalgamation of LCCs in response to the amalgamation of forest management units.

Independent Forest Audit – Record of Finding

Recommendation # 3

Principle: Principle 3; Forest Management Planning

Criteria:

3.1. Plan Author, Planning Team, Chair and Advisor Activities

3.6.1. Draft and final FMP submission, OMNR plan review and approval Direction

Procedure(s):

3.1.2.1. Determining whether a steering committee was established for FMP production and assessing whether the steering committee was successful in resolving any resourcing issues and disagreements among planning team members.

3.6.1.1. Determine draft and final FMP submission dates and compare to the terms of reference. Assess whether the times as specified in the FMPM were provided for review of the plans, preparation of the lists and to make the required alterations.

Background Information and Summary of Evidence:

We were unable to find any evidence that the FMP Steering Committee met during the planning phase for the 2007 FMP. The forest management plan and the 2007-08 Annual Work Schedule were approved late. The target date for FMP approval in the FMP Terms of Reference was March 2, 2007; the actual approval date was May 2, 2007. The target date for commencement of operations in the Terms of Reference was April 1, 2007; the actual approval date for the Annual work schedule was June 22, 2007.

Discussion:

There was an ambitious planning schedule. This was due to:

- a five month delay in receiving the approved planning inventory,
- delays in receiving direction on caribou management and the identification of cultural heritage values,
- delays in the review schedule for the 2004 FMPM,
- the requirement to incorporate the results of the issue resolution process into the FMP.

Through diligent efforts lost time was recovered; however, the FMP was still approved late and forest operations were delayed by a three month late approval of the AWS.

Records review and interviews indicate that while the District Manager did meet with the planning team Chair to deal with issues, repeated attempts by the planning team to have the Steering Committee meet to help resolve issues were not successful. The FMP Terms of Reference is clear on the function of this Committee: "*The steering committee will assess progress of the Forest Management Plan to ensure that the FMP proceeds on schedule and*

that the planning team has adequate resources to complete the FMP on time".
Conclusion: While a major effort by the planning team and advisors reduced the lateness in plan production, we feel that Steering Committee support for the planning team was inadequate.
Recommendation: The District Manager should ensure that the Steering Committee gives adequate support to the planning team to meet its responsibilities in the development of future forest management plans.

Independent Forest Audit – Record of Finding

Recommendation # 4

Principle: Principle 3; Forest Management Planning

Criteria:

3.4.2.3 FMP achievement of the Checkpoint 'Support for the Scoping Analysis'

Procedure(s):

3.4.2.3.1 Assess achievement of the checkpoint including review of the scoping analysis and assess whether an appropriate range of possibilities for management of the forest were examined.

Background Information and Summary of Evidence:

The starting point for scoping was the OMNR approved base model and natural benchmark runs. These runs were not provided in the SFMM.dat file in the supplementary documentation for the 2007 FMP as required by Appendix III of the FMPM.

Individual scoping runs for mature, old growth, and habitat constraints were not provided in the FMP documentation. Specific SFMM scoping runs for the management strategy were also not provided.

Discussion:

It is our assessment that the scoping exercise used to develop the PMS was well thought out and executed. It involved:

- individual scoping to assess the impacts of individual constraints.
- management strategy scoping to maintain SPF and poplar harvest volumes, maintain mixedwood forest units, and provide appropriate harvest and renewal schedules.
- mandatory scoping runs.

Scoping runs were not provided in the SFMM file (dat file) in the supplementary documentation for the 2007 FMP as required by Appendix III of the FMPM. This made it difficult to follow the scoping exercise and understand what specific inputs were adjusted in the various runs.

The FMP was one of the first plans prepared under the 2004 FMPM which included new requirements for scoping and the preparation of the Analysis Package. It is our assessment that a good job was done, but improvements in scoping and management strategy documentation would benefit future FMPs.

Conclusion:

All scoping runs as required by Appendix III of the 2004 FMPM were not available in the FMP documentation.

Recommendation:

For the 2017 FMP, the planning team should clearly identify each scoping run and include a digital copy of each scoping run, the natural benchmark run, and the proposed management strategy as required by Appendix III of the 2004 FMPM. The analysis package should also clearly describe the specific inputs and how these specific inputs were defined for each scoping run. The analysis package or plan text should clearly document the progress in checkpoint achievement.

Independent Forest Audit – Record of Finding

Recommendation # 5

Principle: Principle 3; Forest Management Planning

Criteria:

3.4.4.2 FMP achievement of the Checkpoint 'Support for Base Model

Procedure(s):

3.4.2.2.1 Assess and report on whether the FMP modeling assumptions used are reasonable and whether they are based on the best available information.

Background Information and Summary of Evidence:

Existing AOC reserves were accounted for as "existing reserves" or "accumulating reserves". The FMP documentation (i.e. analysis package, plan text, supplementary documentation) does not describe how the existing AOC areas totaling 48,105.7 hectares. These were also included in the "available forest area", not in the "unavailable forest" in FMP-4. This resulted in problems in attaining plan targets and required the planning team to add harvest area limits (Term 1) to the SB1 and SP1 forest units.

Discussion:

The planning inventory technical specifications require that all existing reserves (e.g. riparian, moose aquatic feeding areas, tourism, stick nests, LUPs etc.) be classified as reserves in the planning and base model inventories. These existing AOC reserves should have been classified as "unavailable" forest in FMP-4 and not as "available" forest.

The Natural Disturbance Pattern Emulation Guidelines (NDPEG) accumulated reserves were calculated using the regional direction with surplus utilized within forest unit groups. The AOC accumulating reserves were calculated by applying slope based waterway reserves to all riparian areas. The sum of all reserves was then divided by the available land base to define the AOC percent accumulating reserve. However, it is apparent the AOC accumulating reserves were calculated based on the FMP-4 available forest which included the 48,105.7 hectares of existing AOC reserves. It is possible that the accumulating AOC reserves could be lower if the contribution of the AOC existing reserves was accounted for.

The adoption of this approach resulted in a proposed management strategy that could not be implemented as the available harvest area included harvesting in older AOC reserves. Classifying and removing existing reserves from the AHA would also allow these areas to contribute to the achievement of non-timber targets such as old growth and wildlife habitat.

Conclusion:

It appears that the calculation of accumulating reserves inappropriately included the area of existing AOC reserves. Fully understanding the scope of this issue is complicated by the fact

that FMP documentation (i.e. analysis package, plan text, supplementary documentation) does not describe how the existing AOC areas totaling 48,105.7 hectares were defined.

Recommendation:

In the 2017 FMP, existing reserves should be classified as "reserved area" rather than "not available forest", in the planning and base model inventories as per the planning inventory technical specifications. The planning team should clearly document in the analysis package and FMP text the basis for the existing reserve areas in SFMM.

Independent Forest Audit – Record of Finding

Recommendation # 6

Principle: Principle 3; Forest Management Planning

Criteria:

3.4.4.2 FMP achievement of the Checkpoint 'Support for Base Model

Procedure(s):

3.4.2.2.1 Assess and report on whether the FMP modeling assumptions used are reasonable and whether they are based on the best available information.

Background Information and Summary of Evidence:

Modeled rates used in the FMP for the cost of forest renewal were much higher than the actual rates in place for the first three years of the plan period. Therefore, the harvesting during the first three fiscal years of the 2007 FMP would not provide adequate funds for forest renewal as required by the Preferred Management Strategy (PMS). Surplus renewal trust funds (above the minimum balance) were appropriately used to offset shortfalls in renewal funding.

The required SFMM renewal levels and expenditures to support the AHA were compared to renewal program data provided in FMP-21 and FMP-22. The 10 year planned renewal program appears to be lower than that required to support the AHA (i.e. planned tree planting of 27,344 ha vs. 31,154 ha required, planned seeding level of 0 ha versus 134 ha required, planned site preparation of 20,218 ha versus 31,288 ha required, and planned tending of 18,093 ha versus 29,161 ha required). Planned expenditures also appear to be in line with required expenditures despite significantly lower than required levels for tending and site preparation.

During the first three years of the 2007-17 FMP renewal revenues rates were much lower than the $6.00 for conifer and $0.50 for hardwood that were modeled in the proposed management strategy. Shortfalls in renewal revenues are documented in Annual Reports prepared for 2006-07 ($2,521,644) and 2007-08 ($1,873,087). An existing surplus in the minimum balance was used to offset these shortfalls. Data for 2008-09 was not available at the time of the audit.

Discussion:

The table below compares the Big Pic 2007-08, 2008-09 and 2009-10 actual renewal rates to the 2007-17 FMP modeled rates. It shows the modeled rates were much higher than the actual rates in place for the first three years of the plan period. Based on the modeling exercise it is not readily apparent how renewal expenditures required to support the AHA could be sustained given the existing shortfalls in renewal revenues (since 2006).

Species	2007-08 Apr1-Jul 31	2007-08 Aug1-Jul 31	2008-09 Apr1-May 31	2008-09 Jun1-Mar 31	2009-10 Apr1-Mar31	2007-17 FMP Modeled
SPF	$3.00	$0.00	$4.50	$4.25	$4.25	$6.00
Ce/La	$3.00	$0.00	$4.50	$4.25	$4.25	$6.00
Po/Bw	$0.50	$0.50	$0.50	$0.50	$0.50	$0.50

Recommendation:

In the development of future forest management plans, actual implemented renewal rates should be more consistent with the modeled renewal rates in order to support the required renewal according to the Preferred Management Strategy. Planned renewal expenditures and revenues should be compared to actual levels in future ARs.

Independent Forest Audit – Record of Finding

Recommendation # 7

Principle: 4.0. Plan Assessment and Implementation

Criterion: 4.3. Harvest

Procedure(s):

4.3.1. Review and assess in the field the implementation of approved harvesting operations including whether operations were conducted to minimize site disturbance.

Background Information and Summary of Evidence:

The field audit investigations found rutting had occurred on some lowland ecosites.

Discussion:

Rutting was evident on some of the harvested lowland ecosites inspected during the field audit. Rutting on these sites may be related to "off-season" harvesting to supply conifer mills still operating during the recession, and appeared to be associated with harvests in the latter years of the audit term. While the overall incidence of rutting observed during the audit was not high, rutting results in the loss of productive land, the disruption of water tables, and soil damage through compaction. Operator supervision and due diligence is required to minimize

negative environmental impacts associated with harvest operations.
Recommendation: The SFL holder should ensure that logging operations are appropriately timed and that operators are trained and supervised in order to minimize rutting during harvest operations.

Independent Forest Audit – Record of Finding

Recommendation # 8

Principle: 4 Plan Assessment and Implementation

Criterion: 4.4. Renewal.

Procedure(s):

4.4.1. Review and assess in the field the implementation of approved renewal operations and determine if actual operations were appropriate for site conditions encountered and effective.

Background Information and Summary of Evidence:

The evaluation of a trend in forest unit transitions is difficult to complete for a number of reasons. These included the age of the current FRI (inaccuracies in initial stand descriptions), gaps in past reporting (silvicultural intensity/SGR/FOP on harvested/disturbed sites); and a lack of qualitative date. These shortcomings complicate the evaluation of trends in forest unit transitions. Without this information the determination of "regeneration" success vs. "silvicultural" success is not possible or difficult.

The renewal of the SB1 forest unit by extensive treatments on Ecosites 12 and 13 has been identified as a concern by the OMNR. Documentation as to the efficacy of natural renewal treatments on these ecosites is not available due to a lack of previous reporting by silvicultural intensity or by SGR/FOP. Renewal on other lowland black spruce ecosites (i.e. ES8 and ES11) by extensive treatments appears to be successful.

Discussion:

686860 Ontario Ltd. had completed regeneration surveys on sites identified as SB1 forest unit sites in 2005 that indicated a 66% renewal to lowland black spruce. Information in the ARs also indicates that some SB1 forest units are transitioning to other forest units. However, this information needs to be evaluated from the context of SGR/FOP, ecotype, original stand composition, stocking level and species composition at time of assessment etc.

Conclusion:

A requirement exists to monitor and track forest renewal and ensure that SGRs and Silvicultural Treatment Packages (STPs) are effective in meeting forest management plan objectives and targets related to forest cover. FTG data and records must also be available in a format that facilitates the evaluation and analysis of silvicultural effectiveness (i.e. reporting on SGR/FOP).

Recommendation:

The District OMNR and the SFL holder must ensure that adequate records are maintained to

enable the assessment of the "silvicultural effectiveness" of renewal treatments on all forest unit sites (with particular emphasis on SB1forest unit sites).

Independent Forest Audit – Record of Finding

Recommendation # 9

Principle: 4.0. Plan Assessment and Implementation

Criterion: 4.5. Tending and Protection

Procedure(s):

4.5.1. Review and assess in the field the implementation of approved tending and protection operations and determine if actual operations were appropriate for actual site conditions encountered.

Background Information and Summary of Evidence:

Vegetative competition, particularly in areas with clay, loam or silt soils poses a significant management challenge for renewal of conifer species on the Big Pic Forest. Our field observations indicated that monitoring and timely tending interventions are required on these sites in order to ensure adequate conifer stocking levels. Additionally, to address the weak market for some species and products a second-pass silvicultural system was implemented. Under this approach hardwood species are retained within the harvest block in anticipation of a future market. The system presents a renewal challenge related to the control of hardwood stocking levels (through seeding by hardwood residuals) and presents challenges for aerial tending due to the persistence of hardwood canopy cover within the cutover which can intercept the spray.

Discussion:

The SFL holder should consider utilizing alternative procedures in addition to current strategies and practices (on some sites) to control competing vegetation. These procedures could include the topping of some hardwood trees retained as residuals to reduce hardwood ingress, multiple treatments where the hardwood canopy inhibits chemical penetration to forest floor, or the expanded use of ground-based tending treatments in instances where hardwood cover may limit the efficacy of the tending program. On-going monitoring and timely tending is a requirement to ensure that the FMP objectives related to conifer renewal are achieved.

Recommendation:

The SFL holder must ensure that conifer renewal sites are monitored to ensure timely tending interventions and ensure that the planned tending strategies are appropriate for the site/stand conditions on the treatment area.

Independent Forest Audit – Record of Finding

Recommendation # 10

Principle: 4 Plan Assessment and Implementation

Criterion: 4.4. Renewal.

Procedure(s):

4.4.1. Assess the effectiveness of operations to reduce areas of slash piles and chipping debris and treatments to regenerate those areas.

Background Information and Summary of Evidence:

The management of slash is a problem on the Forest. In June 2009 GreenForest prepared an "*Interim Strategy for Debris Management*" to address the issue of slash management. The goal of the strategy is to limit the loss of productive land area to roadside logging debris. Secondary goals are to utilize debris for bio-energy "feedstock" and reduce the "visual impacts" of debris where possible. The strategy proposes that slash may remain untended for future collection or piled for storage and delivery for a period not exceeding two years. Under the strategy slash/debris management treatments are based on economic zones for bio-energy production. Slash outside of the "bio-energy zone" will be treated through a number of initiatives which include;

- piling and burning, or piling and leaving,
- mechanical site preparation within slash,
- rowing or aligning the slash to facilitate planting,
- redistributing slash on cutovers,
- utilizing the slash as brush mat or for road construction, etc.

During the field audit we observed many areas where slash treatments had not been implemented, or had been delayed beyond the two year period in anticipation of developing future markets for biomass. The utility of piles for biofuel degrades over time. Productive forest area is lost when these piles are not burned and the recovered area is not planted or seeded.

Discussion:

During the field audit many areas were in evidence where slash treatments had not been implemented, or had been delayed in anticipation of developing future markets for biomass. No bio-energy markets had developed during the audit term and the lack of slash treatment was a concern due to the loss of productive forest area.

Conclusion:

Although we recognize work has been undertaken to address the problem of slash and debris management we are concerned that productive forest land is being removed from the land base when slash management strategies are only partially implemented, not implemented or are poorly timed. We note that the previous audit provided a recommendation addressed at slash and debris management on the Forest.

Recommendation:

The SFL Holder should critically review and evaluate the effectiveness of its "*Interim Debris Management Strategy*" to ensure that the adopted management procedures are implemented and that slash management techniques are satisfactorily achieving the strategy goals and objectives.

Independent Forest Audit – Record of Finding

Recommendation # 11

Principle: Principle 6; Monitoring

Criterion: Criterion 6.1; Has a MNR compliance program been developed and implemented to effectively monitor program compliance.

Procedure(s):

Procedure 1: Determine how forest management activities were monitored by OMNR and assess whether the actual level of the overall monitoring program was in accordance with the FMP/plans and whether it was appropriate.

Background Information and Summary of Evidence:

The Manitouwadge Area office had a complement of 4 technicians with compliance related responsibilities. Three of the positions became vacant in the past few years and have not been refilled. As a result OMNR inspections dropped from an average of 18 annually for the first 3 years of the audit term to approximately 5 for the last two years.

Discussion:

The reduction in inspections was associated with the loss of 3 technician positions in the Manitouwadge Office. The loss of positions was coincidental with the downturn in the forest industry and as a result the single remaining technician was able to carry the workload. When industry operations are renewed the current staffing will not be able to do the job.

We understand the allocation of staff resources is determined by the Regional office and that the District Manager has limited ability to shift resources.

Conclusion:

A single OMNR technician cannot carry out the compliance responsibilities of the Manitouwadge Office.

Recommendation:

The OMNR Regional Director should ensure that sufficient staff resources are available within the Wawa District to meet forest compliance inspection obligations on the Big Pic Forest.

Independent Forest Audit – Record of Finding

Recommendation # 12

Principle: Principle 6; Monitoring

Criterion: 6.5. Annual Reports

Procedure(s):

6.5.1. Determine if Annual Reports have been prepared in accordance with the applicable FMPM including associated deadlines.

Background Information and Summary of Evidence:

Annual Reports are to be submitted to the OMNR in accordance with the requirements of the FMPM and the Forest Information Manual (FIM). The AR is to be prepared and submitted by November 15. OMNR staff review the report for accuracy and completeness and are to provide results of the review to the report author within 30 days of the receipt of the AR. Comments provided by the OMNR are to be addressed and if required a revised AR is to be submitted by February 15.

Annual Reports were submitted to the Forest Information Portal as follows:

Year	Initial Submission Date	# of Re-Submissions	Approval Date
2004-2005	2006/11/16	2	2007/02/06
2005-2006	2006/11/10	3	2007/09/19
2006-2007	2007/11/15	2	Pending
2007-2008	2008/10/22	2	2008/12/22
2008-2009	2008/10/30	1	2009/01/09

Re-submission and acceptance of the Year 10 AR (2006-2007) was still pending at the time of the audit.

Discussion:

Initial submissions of ARs did not fully meet FIM or FMPM requirements/standards and re-submissions were required for accuracy or report completeness. In instances of multiple re-submissions "required" alterations were often not satisfactorily completed. Required reporting timelines were often not adhered to.

The 2006-2007 AR required re-submission following an OMNR review in February 2008. The re-submission of this report is still pending, and the report has not been formally "approved" by the OMNR.

Recommendation:

The SFL holder must ensure that Annual Reports meet all FIM and FMPM requirements with respect to content and submission deadlines. The outstanding requirement to re-submit the 2006-2007 Annual Report must be addressed immediately.

Independent Forest Audit – Record of Finding

Recommendation # 13

Principle: 6.0 Monitoring

Criterion: 6.4. Monitoring Indicators of Forest Sustainability

Procedure(s):

6.4.1. Assess whether programs are in place and are being implemented to provide sufficient data for all indicators identified in the FMP.

Background Information and Summary of Evidence:

Information on the effectiveness of silvicultural treatments is a critical component of ensuring forest sustainability. The Wawa District initiated a Silvicultural Effectiveness Monitoring Program to address Forest Class EA Condition 19. Core Task # 1 requires the "*Conduct of formal field surveys of a minimum of 10% of the area recently declared free-to-grow (FTG)*". The information is to be used to track the use of preferred and acceptable silviculture treatment packages, to determine the accuracy of FTG results reported by the SFL holder, and to assess the results of various renewal operations at the field level.

Regional OMNR has made funds available to the Wawa District to undertake SEM work since 2005. The capacity to conduct SEM core functions on an annual basis has been undermined by staff vacancies and a low funding priority at the District level. A funding allocation to conduct aerial reconnaissance work was not available until December 2008. These circumstances contributed to the low level of achievement of the target sample for Core Task # 1 (3.3% of the proposed target area was extensively surveyed) for the Big Pic Forest.

Discussion:

Condition 29 of the 2003 Declaration Order under the Environmental Assessment Act states that OMNR shall "*ensure that silvicultural effectiveness monitoring continues and shall provide direction for systematic reporting of results including requirements for the maintenance of silvicultural records and analysis, and the evaluation of the effectiveness of the silvicultural activities*". OMNR must provide sufficient financial and human resources to ensure that its SEM obligations are met in a timely and effective manner.

Recommendation:

The Wawa District must ensure, on an annual basis, that sufficient financial and human resources are available to satisfactorily meet Core Task requirements and obligations for Silvicultural Effectiveness Monitoring on the Big Pic Forest.

Independent Forest Audit – Record of Finding Recommendation # 14
Principle: Principle 8; Contractual Obligations **Criterion:** Criterion 8.1.9; Audit Action plan and Status Report from previous IFA. **Procedure(s):** Procedure 1. An Action Plan must be prepared within 2 months of receiving the final audit report and a Status Report must be prepared within 2 years following approval of the Action Plan.
Background Information and Summary of Evidence: The 2004 IFA report was submitted in January 2005 and the Action Plan was submitted in November 2005.
Discussion: The Action Plan was submitted approximately 8 months late.
Conclusion: The Audit Action Plan was submitted approximately 8 months late.
Recommendation: The SFL holder and OMNR District must ensure the Action Plan responding to IFA recommendations is prepared and submitted within the required time.

Independent Forest Audit – Record of Finding

Recommendation # 15

Principle: Principle 8; Contractual Obligations

Criterion: Criterion 8.1.9. Audit Action plan and Status Report from previous IFA.

Procedure(s):

Procedure 1. An Action Plan must be prepared within 2 months of receiving the final audit report and a Status plan must be prepared within 2 years following approval of the Action Plan.

Background Information and Summary of Evidence:

In response to the 2004 IFA report an Action Plan was submitted in November 2005. Approval for the Plan was received approximately one year later in November 2006. A Status Report was submitted in November 2008 and approval was received 10 months later in September 2009.

Discussion:

We acknowledge that the initial submissions of the Action Plan and Status Report would require regional/corporate OMNR review, comment and undoubtedly, resubmissions. That review process can realistically be expected to take a number of weeks. However, approval periods of approximately 1 year (12 and 10 months) are excessive; especially for legislated IFA requirements. In this instance, the timely submission and approval of the Status Report was especially important since it was linked to the extension of the SFL licence. The Status Report states; "*The Forest Management and Industry Relations Branches will lead the process to make a recommendation to the Minister to extend or not extend the term of the SFL based on the audit findings and implementation of the Action plan. A letter will be developed, for the Ministers signature, to notify the Company of this decision pursuant to Section 26 of the CFSAA. Deadline date: Within 2 months of receipt of signed status report*".

The responsibility to initiate the Action Plan and Status Report rests with the DM. However, late and incomplete initial submissions, numerous re-submissions and slow responses by regional staff require Regional Director attention.

Conclusion:

Approval periods of approximately 1 year for an IFA Action plan and Status Report are excessive.

Recommendation:

The OMNR Regional Director must ensure that District and Regional staff place an increased priority on the timing and quality of initial submissions, internal reviews and final approval of IFA Action Plans and Status Reports.

Independent Forest Audit – Record of Finding Recommendation # 16
Principle: 8.0. Contractual Obligations **Criterion:** 8.1.4. Conduct inventories, surveys tests and studies in accordance with the FIM. **Procedure(s):** 6.4.1. Assess whether programs are in place and are being implemented to provide sufficient data for all indicators identified in the FMP.
Background Information and Summary of Evidence: Free-to-Grow surveys were conducted intermittently on the Big Pic Forest during the audit term. Currently there are 14,846 hectares that are 11 years or older requiring FTG survey. There are 3,599 hectares within this total area that were harvested prior to 1995.
Discussion: A backlog of areas requiring FTG survey exists on the Forest (14,846 ha) with approximately 25% of the area associated with harvests that occurred prior to 1995. As of 2006-2007 there is a total area of 76,348 ha which will require FTG assessment in the future.
Conclusion: A backlog in the area requiring FTG survey exists on the Forest.
Recommendation: The SFL holder must address the backlog in area requiring Free-to-Grow survey.

Appendix 2

Management Objectives Table

Assessment of Achievement of Objectives
2002 Big Pic FMP

2002 FMP OBJECTIVES	ASSESSMENT OF OBJECTIVE ACHIEVEMENT (YES, NO, PARTIAL)	AUDITOR COMMENTS
Forest Diversity Objective		
To develop, over time, a forest with characteristics which, to the extent possible, resemble those of a fire-driven boreal forest at both the stand and landscape level:		
To ensure that management practices will result, over time, in a forest containing forest units that fall within the range of natural variation for the Big Pic Forest. • Black spruce 35% • Jack pine 14% • White spruce 8% • Hardwoods 15% • Mixedwood 28%	Yes	In the FMP Selected Management Alternative (SMA) most of the forest units remained within the range of natural variation. Three units were close to target levels and the SMA and its related strategies was the best overall. There is some concern that the S1 forest unit is not being satisfactorily renewed on lowland sites using extensive (natural) renewal strategies. A Recommendation is provided to address this concern.
To develop an age-class distribution, over time, that provides for suitable amounts of late successional (over-mature/decadent) forest in all major forest units. • Black spruce 24% • Jack pine 24%	Yes	In the FMP, most forest units met age class targets in all 10 year terms. The SMA and its related strategies did the best job of moving towards the desired future forest condition.

• White spruce 24% • Hardwoods 28% • Mixedwood 60% To use forest management practices to develop disturbance patterns, at both the stand and forest level, that will resemble natural disturbance patterns.	Yes	The present distribution of area by forest unit and long-term target distribution was set out in the FMP. Our field inspection indicated that forest operations were consistent with guidelines designed to emulate natural disturbance patterns. We have some concern about the effectiveness of current slash management practices and the efficacy and timeliness of tending operations. Recommendations are provided to address these concerns.
Social and Economic Objective		
To provide a balance of social, economic, recreational and cultural benefits traditionally derived from the Big Pic Forest: To provide a wood supply from the Forest that will meet, as closely as possible and for as long as possible, the industrial demand established for the Forest.	Yes	The Selected Management Alternative (SMA) was not able to fully meet the historically based industrial demand targets; targets were set for 450,000 m^3, 425,000 m^3 and 425,000 m^3 SPF for the first three 10 year terms and the shortfall is substantial in later terms.

Historically based industrial demand targets were: 451,475 m^3 annually of spruce, jack pine and balsam fir (SPF) and 119,158 m^3 annually of poplar.		FMP poplar targets were increased to help offset SPF shortfalls.
FMP five year targets were 2,284,000 m^3 of conifer and 727,000 m^3 of hardwoods.	Yes	Actual harvest was 2,276,000 m^3 of conifer and 478,000 m^3 of hardwoods comprising 100% and 66% of the FMP objectives respectively (91% overall). The full achievement of the harvest target earlier in the audit term is attributed to salvage harvesting of fire damaged timber. Lack of markets resulted in reduced harvest levels latter in the audit term.
To develop and maintain a forest access road network that provides for the efficient delivery of forest products while permitting road access for general recreation, road-dependent tourism and other commercial users.	Yes	Road plans and access policies are being implemented. However only 56% of the planned primary road construction was achieved. Conflicts with caribou management strategies and deferral to the next FMP were cited as the reasons. Ninety-two (92%) of the planned secondary roads were constructed. Roads and water crossings assessed during the field audit were in good repair and well constructed. Road use strategies were implemented to protect remote tourism while providing access

		for recreation and other uses.
To recognize and mitigate the identified adverse impacts of forest management activities on the remote tourism industry on the Big Pic Forest.	Yes	The 2002 forest management planning process incorporated tourism values in the AOC prescriptions. Field inspections indicated that AOCs were being implemented as planned.
To provide economic opportunities for affected First Nations communities while remaining sensitive to their social, cultural and spiritual ties to the land.	Yes	Economic opportunities were provided to First Nations.
To provide economic opportunities for affected local communities.	Yes	The overall level of economic impact of the SMA was the seventh highest of all of the management alternatives. Harvest levels were 91% of FMP planned levels, resulting in a related positive economic impact.
Forest Cover Objective		
To provide forest cover for those values that are dependent on forest cover:	Yes	The SMA met habitat requirements for most species. Requirements could not be met fully for three species for a limited number of plan terms in the SFMM model.
To provide for long-term marten habitat: • 10 to 20 percent of the Forest that is capable of providing marten habitat to be maintained in	Yes	The SMA met the targets for long-term marten habitat.

suitable habitat conditions arranged in core areas. • Individual core areas should be comprised of at least 75 percent suitable marten habitat.		
To protect water quality and fish habitat within watercourses / waterbodies affected by forest management activities.	Yes	Field inspection indicated that AOCs designed to protect waterbodies for fisheries management purposes were being implemented properly.
To protect important natural resource, cultural heritage and infrastructural features affected by forest management activities.	Yes	AOCs designed to protect cultural heritage features were properly implemented.
Silviculture Objectives		
To employ the most current silvicultural technology to provide for prompt treatment of cutover areas through a combination of artificial and natural treatments and appropriate levels and types of tending and protection operations:		
Silvicultural ground rules will be developed that will facilitate the achievement of the forest diversity, socioeconomic, forest structure and forest cover targets.	Yes	Silvicultural ground rules were appropriate to meet forest management objectives.

Silvicultural treatment packages will be developed that best achieve the desired future forest condition for the Big Pic Forest including the maintenance of such species as cedar, larch and white spruce.	Partial	A requirement exists to monitor and track forest renewal and ensure that SGRs and Silvicultural Treatment Packages (STPs) are effective in meeting objectives and targets related to forest cover. FTG data and records must also be available in a format that facilitates the evaluation of silvicultural effectiveness (i.e. reporting on SGR/FOP).
<u>Silvicultural Treatments</u>		
An appropriate level of aerial tending will be undertaken to ensure that desirable conifer regeneration is not lost to competition from non-crop species.	Partial	Trends data indicate that no significant forest unit composition changes are occurring. A concern with respect to the renewal of black spruce lowland sites by extensive treatments requires that a monitoring program be implemented. The implementation of a two pass harvest system which retains the forest canopy limited the efficacy of some sampled tending treatments. A recommendation to address this concern is provided.
Artificial Regeneration: 14,552 hectares.	No	The actual area artificially regenerated was 8,997 hectares (62% of planned).
Natural Regeneration: 13,455 hectares.	Yes	The actual area designated for natural regenerated was 16,476 hectares (122% of planned). The increased level of natural renewal reflects site

		conditions encountered in the following harvest.
Mechanical Site Preparation: 13,101 hectares.	No	The actual area mechanically site prepared was 3,745 hectares (29% of planned). The shortfall in mechanical site preparation was attributed to reduced harvest levels and lack of suitable sites.
Chemical Site Preparation: 4,000 hectares	No	1,363 hectares were aerially sprayed (34% of planned). The shortfall in chemical site preparation was attributed to reduced harvest levels and lack of suitable sites.
Mechanical Tending: 16,685 hectares	No	11,566 hectares were mechanically tended (67% of planned). The shortfall was attributed to the reduced levels of harvest and a lack of sites suitable for the treatment.
An understanding of pre-commercial thinning techniques, costs and returns will be developed.	No	No suitable areas for treatment were located. As a result of the lack of sites, a financial analysis of operations was not possible.

Achievement of Management Objectives
2007 Big Pic FMP

2007 FMP OBJECTIVES	ASSESSMENT OF OBJECTIVE ACHIEVEMENT YES, NO, PARTIAL, NOT YET APPLICABLE (NYA)	AUDITOR COMMENTS
Forest Diversity Objective		
Objective 1. To develop over time, a forest with characteristics which, to the extent possible, resemble those of fire-driven boreal forests at both the stand and landscape levels while providing for provincially and locally featured species habitat and species-at-risk habitat. <u>Indicators & Measures:</u> Landscape Pattern: Frequency and area distribution of forest disturbances	Yes	In the FMP: -Desired frequency distributions were achieved for all size classes except <100, 101-200, and 1001-5000 (due to the need to meet the 80/20 NDPEG requirement. -Desired area distributions were achieved for all size classes except 5,001-10,000 (due to past cuts). All other size classes are at the low end of the ranges. -The number of marten cores by size category was achieved for the Caramat and Nagagami zones with a majority in the

		Southern Zone meeting the targets. Cores were expanded to increase the percent of deferred suitable habitat. -Targets for suitable habitat within cores were met over the 0 -20, 21-40, and 41-60 year time frames. -The percent of suitable marten habitat within cores increases over time and the target was met at the 41-60 year period.
Forest Structure, Composition and Abundance	Yes	In the FMP, the trend was toward the desirable level for all forest unit groupings except two. These were in the SF1 group where plantations increased the amount above the historic and in the MIX group where the level was below the target as a result of inflated historic levels.
Amount and Distribution of Mature Forest	Yes	In the FMP, the majority of the measures met the desirable levels. Those measures that did not meet the desirable level were due to the balancing of objectives.
Amount and Distribution of Old Growth Forest	Yes	In the FMP, all measures fell within the target levels. Those measures that do not meet the desirable level are due to the balancing of objectives.
Area of Habitat for Forest-Dependent Provincially- and Locally-Featured Species	Yes	In the FMP, all measures fell within the target levels. Those measures that do not meet the desirable level are due to the

		balancing of objectives.
Area of Habitat for Forest-Dependent Species at Risk	Yes	In the FMP, all measures fell within the target levels and meet or exceed the desirable levels.
Social and Economic Objectives		
Objective 2. To provide for the efficient delivery of forest management activities while providing opportunities for other commercial and recreational users on the forest. <u>Indicators & Measures:</u>		
Road Density	Not Yet Applicable	Reporting function only
Road Classification (Primary and Branch roads on Crown land)	Not Yet Applicable	Reporting function only
Objective 3. To provide continuous and predictable harvest levels (area and volume) that, to the extent possible, meet the wood supply demands over the short-, medium- and long-terms based on the 2006 Management Unit Contribution by species group, contributing to Ontario's economy.		

Indicators & Measures: Long-Term Projected Available Harvest Area and Volume by Forest Unit and Species Group	Partial	In the FMP: -The mix of forest area was optimized to meet volume targets. The mid-term downward trend in available harvest area correlated with the downward trend in available harvest volumes. -The areas and volumes trended back to the target range toward the end of the 100 year timeframe. The volume decline was most pronounced in the SPF species group with a 40% drop in the mid-term trending back to the target toward the final term. -The poplar species group experienced a dip of 25% at term 2 and then recovered in the 3rd term and trended upward to an 82% increase above the target by term 10.
Available, Forecast and Actual Harvest Area by Forest Unit	No	In the first year (2007-08) of the 2007-2012 term, 55% of the planned annualized area was actually harvested. During that year, the pulp and roundwood markets came to a halt and were still shut down at the time of the audit. This economic situation will make it difficult to realize planned volume targets for the 2007-2012 plan term. Harvest area by forest unit will be reported in Year 7 & 10 ARs.

Available, Forecast and Actual Forest Volume by Species	No	In the first year (2007-08) of the 2007-2012 term 42% of the planned annualized volume was actually harvested. Harvest area by species will be reported in Year 7 & 10 ARs.
Percent of Forecast Volume Actually Utilized by Mill	Not Yet Applicable	Actual Harvest volume utilized will be reported in Year 7 & 10 ARs.
Objective 4. To ensure that the managed Crown forest that is available over time is maintained to meet long-term harvest levels (area), thus contributing to Ontario's economy. <u>Indicators & Measures:</u>		
Managed Crown Forest Available for Timber Production	Yes	Total Production Forest area was reduced between the 1997 and 2007 plan periods due to the creation of four conservation reserve additions.
Objective 5. To develop a consultation approach that will provide opportunities for Aboriginal, local communities, and the MPCC for input in plan development. <u>Indicators & Measures:</u>		
Opportunities for involvement in plan development provided to Aboriginal communities	Yes	Aboriginal communities were contacted at least 6 months prior to the Invitation to Participate and all 5 Aboriginal communities were

		contacted on an ongoing basis throughout the planning process.
	No	The target of having FN attendance at 75% of meetings was not met as a result of scheduling difficulties and competing priorities for FN representatives.
	Yes	The DM provided opportunities for FNs to participate in the identification of native values at all appropriate stages.
Local Citizens Committee's Self Evaluation of its Effectiveness in Plan Development	Yes	A letter from the LCC indicated their general support for the FMP. However, they were concerned about having inadequate time to understand plan contents and to communicate with their constituents.
Silviculture Objectives		
Objective 6. To ensure that harvested lands are renewed through appropriate silviculture practices and meet the related regeneration standards. <u>Indicators & Measures:</u>		
Percent of Harvested Forest Assessed as Free Growing by Forest Unit	Not Yet Applicable	This will be assessed at 7 & 10 Year ARs. The goal is to have 100% of harvested areas assessed as FTG. A target has been set at >90% as FTG by term.

Hectares of Pre-Commercial Thinning	Not Yet Applicable	This will be assessed for the Year 7 & 10 ARs. The goal is to increase the level of PCT over the current 0 ha per year.
Annual Report Measure of Slash Management Activities (% of allocation)	Not Yet Applicable	This will be assessed for the Year 7 & 10 ARs. The goal is to assess and manage more than 50% of the slash. Slash piling did not occur in 2005-2006. Slash management activities such as piling, burning, rowing and the use of slash in roadbeds did occur during the audit term.
Provision of Forest Cover Objective		
Objective 7. To ensure the protection of natural resources, non timber values and to maintain a healthy ecosystem through the development and implementation of a compliance plan and the monitoring of operational prescriptions. <u>Indicators & Measures:</u>		The indicators and measures under this objective will be formally assessed at the Year 7 and Year 10 Annual reports. The desirable level is 100%, however, the target has been set at >90%.
Compliance with Prescriptions for the Protection of Natural Resource Features, Land Uses or Values Dependent on the Forest	Yes	During the first two years of the 2007 FMP the field audit found compliance with the protection of these values.
Compliance with the Prescriptions for the Protection of Resource Based Tourism Values	Yes	During the first two years of the 2007 FMP the field audit found compliance with tourism values prescriptions.

Compliance with Management Practices that Prevent, Minimize or Mitigate Site Damage	Partial	Rutting was observed on lowland harvest sites. No other significant site damage was observed. A recommendation related to the rutting problem is provided.
Compliance with Prescriptions Developed for the Protection of Water Quality and Fish Habitat	Yes	Fisheries habitat and water quality was adequately protected in areas inspected during the audit. Water crossings construction and maintenance was well done.
Compliance with Utilization Standards	Yes	Harvests were complaint with utilization standards. Due to poor market conditions some blocks were suspended for a number of years and wood has been left piled in the bush. Harvested material observed in the field audit had been scaled for harvest payments.
Compliance with Aboriginal AOC Prescriptions	Yes	There was FN involvement in the preparation of values maps. AOC prescriptions associated with Aboriginal values were properly implemented.
Non-compliance in forest operations inspections	No	The number of inspections carried out was appropriate to the level of activity on the Forest. There were no major non-compliance issues or trends. Over the audit term, OMNR inspections resulted in an average NIC rate of 8% and industry inspections averaged approximately 5% NICs.

Appendix 3

Compliance with Contractual Obligations

Licence Condition	Licence Holder Performance
Payment of Forestry Futures and Ontario Crown charges.	All payments had been made by the SFL holder (Marathon Pulp Inc.) as of March 31, 2009. Overlapping licencees and mills receiving wood from the forest were in arrears with payments.
Wood supply commitments, MOAs, sharing arrangements, special conditions. 1. Kimberly-Clark Forest Products Ltd. (Now Terrace Bay Pulp Inc.) 2. Longlac Wood Industries 3. Grant Forest Products Inc. The SFL holder is entitled to utilize the available harvest described in Big Pic FMP.	1. Commitment met. 2. Commitment met. 3. Commitment never accessed by Grant Forest Products Inc.
Preparation of FMP, AWS reports; abiding by the FMP, and all other requirements of the FMPM and CFSA.	Most required reports were completed; with the exception of a required re-submission of the 2006-2007 Annual Report. The re-submission was still pending at the time of the audit. Problems exist with meeting schedules for report re-submissions and the initial quality of AR documents. A recommendation is provided. Forest operations conformed to the FMP to the extent possible given the downturn in the forest sector and requirements to salvage timber resulting from wildfires.

Conduct inventories, surveys, tests and studies; provision and collection of information in accordance with FIM.	A backlog in area requiring free-to-grow assessment exists. A recommendation is provided to address this concern.
Wasteful practices not to be committed.	A lack of markets during the audit term resulted in some merchantable trees not being harvested (second pass harvest system) and/or piles of wood being left in cutovers. Harvested material had been scaled for harvest payments. There were no wasteful practices reported during the audit term and no wasteful practices were observed during the field audit.
Natural disturbance and salvage SFL conditions must be followed. Complete a FMP Amendment to deal with salvage circumstances. Meet all silvicultural standards on the harvested salvage area. Salvage area not harvested to be listed as natural depletion in the Annual report.	All FMPM requirements were followed including an FMP amendment to facilitate salvage harvests. The amendment was prepared and approved. All silvicultural standards were met in conjunction with salvage operations during the audit term. A small portion of the salvage area not harvested was listed as natural depletion.
Protection of the licence area from pest damage, participation in pest control programs.	No pest management activities were undertaken during the audit term.
Withdrawals from licence area.	There were no withdrawals during the audit period.
Audit Action Plan and status report.	The Audit Action Plan was prepared but it was submitted late. Time from initial submission to approval for both the Action Plan and Status Report required approximately 1 year. Except for Recommendation # 10 and # 20, all of the other recommendations and suggestions in the 2004 IFA have been

	completed. The report outlines the commitments for the completion of Recommendation # 10 and # 20. Problems persist with Recommendation # 17 which required that Annual Reports be submitted, finalized and approved in accordance with FMPM timelines. A recommendation is provided to address this concern.
Payment of forest renewal charges to Forest Renewal Trust (FRT).	Payments by the SFL holder, (Marathon Pulp Inc) were up-to-date for the five year audit term. Overlapping Licencees and mills receiving wood from the Forest owed $2,446.204.00. During the preparation of this report, we were informed that OMNR made financial arrangements to address trust accounts that were in arrears.
Forest Renewal Trust eligible silviculture work.	Audit site inspections determined that maps were accurate and work was completed as invoiced in the Specified Procedures Report.
Forest Renewal Trust forest renewal charge analysis.	An analysis of Forest Renewal Trust charges was completed.
Forest Renewal Trust account minimum balance.	The minimum balance was maintained for all five years of the audit term. Monies were owed to the fund by the Overlapping Licencees and mills receiving wood from this Forest. During the preparation of this report we were informed that OMNR made financial arrangements to address trust accounts that were in arrears.
Silviculture standards and assessment program.	A silvicultural standard and assessment program is being implemented. Field monitoring activities include assessments of

	regeneration success, free-to-grow surveys, and assessments of vegetative competition. Assessments of the effectiveness of planned silvicultural operations are also undertaken (i.e. the effectiveness of tending treatments and site preparation, etc.). Forest units from the 1997-2002 FMP are inconsistent with forest units used in subsequent FMPs making assessments of "silvicultural success" difficult or inconclusive. The requirement to report on the 11,841 ha of XYZ lands is expected to be completed with the submission of the 2009 AR (668 ha to be reported on in the AR, with 4 ha scheduled for silvicultural treatment in 2009 AWS).
Aboriginal opportunities.	All FMPM Aboriginal notification and invitation to participate requirements were met. Opportunities were provided to participate in FMP development. Economic opportunities to participate in the delivery of forest management activities were hindered by the economic downturn and the financial status of both MPI and BFPL.
Preparation of compliance plan.	Compliance plans were prepared as required.
Internal compliance prevention / education program.	BFPL had excellent internal training and education programs.
Compliance inspections and reporting; compliance with compliance plan.	BFPL undertook an appropriate level of inspections for the level of activity on the Forest. There was good adherence to the compliance plan. There were no major compliance issues or trends during the audit term.
SFL forestry operations on mining claims.	All proper notifications were completed.

Appendix 4

Audit Process

Procedures Audited, by Risk Category								
Principle	**Low Risk**			**Medium Risk**			**High Risk**	**Comments**
	Applicable (#)	Selected (#)	% Audited	Applicable (#)	Selected (#)	% Audited	Audited (#) (100% Audited)	
1. Commitment				2	1	50		This principle was considered met as the Forest was certified by the Forest Stewardship Council.
2. Public Consultation and Aboriginal Involvement				6	4	66	2	The following procedures were not audited: 2.2., 2.6.1.
3. Forest Management Planning	4	2	50	11	10	91	50	The following procedures were not audited; 3.2.1., 3.2.2., 3.3.2.3.
4. Plan Assessment & Implementation	1	1	100	2	1	50	9	The following procedure was not audited 3.9.3.2.
5. System Support				1	1	100	2	This principle was considered met as the Forest was certified by the Forest Stewardship Council.
6. Monitoring				7	6	86	11	The following procedure was not applicable to this audit 8.1.20.
7. Achievement of Management Objectives and Forest Sustainability				2	2	100	12	
8. Contractual Obligations				4	4	100	8	
Totals	5	3	60	35	29	83	94	

IFA Field Sampling Intensity on the Big Pic Forest[12]

Activity	Total Area (Ha) / Number	Planned Sample Area (Ha)	Actual Area (Ha) Sampled[13]	Number of Blocks[14] Visited	Percent[15] Sampled (%)
Harvest	28,484	2,848	3,253	16	11
Renewal	18,320	1,832	2,078	9	11
Site Preparation (Mechanical and Chemical)	13,431	1,343	1,415	18	11
Tending	6,977	698	806	5	12
Free-to-Grow	23,780	2,378	2,415	5	10
Slash Management (Piling and Burning)	15,867	1,587	1,660	4	10
Specified Procedures Report Sites	7,656	738	4,483	16	59
Water Crossings	121	12	12		10
Primary and Branch Road Construction (kms)	474	47	474		100
Forest Roads and Maintenance Agreement Work[16]	474 Constructed 11,710 Maintenance	47 1,171	474 11,710		100

[12] During the field audit we observed numerous areas where AOCs had been implemented in either linear buffer strips or in association with an identified value. We cannot provide an accurate estimate of the sample intensity given the linear nature of many of the buffers. All AOCs associated with sample sites were observed.

[13] Not every hectare of the area sampled is surveyed, as this is not feasible.

[14] Blocks are comprised of amalgamated stands.

[15] Percent sampled represents a combination of primary and secondary audit activities inspected on a site.

[16] The Roads Invoices for maintenance and construction often list a given road and length a number of times, especially for maintenance. Therefore the total km listed for a given road is a 'gross' figure compared to the 'net' figure which is contained in the annual report.

Summary of Consultation and Input to the Audit

Public notices and an invitation to provide comments and/or complete a survey on the Arbex website were placed in the Manitouwadge Echo and the Marathon Mercury newspapers. A random sample of 35 % of the individuals and organizations listed in the 2007 FMP mailing list were sent a letter and a survey questionnaire to solicit input to the audit process. There was one response to the invitations to participate in the audit.

All FNs with an interest in the Forest were contacted by mail to participate and/or express their views. Each FN received several follow-up telephone calls and/or e-mails. Interviews were held with FN Economic Development Officers (2), a FN forester, a FN Lands and Resources co-coordinator and the head of an established FN development corporation. A representative of the Matawa Tribal Council was interviewed and an auditor attended an audit-related meeting on the Pic River reserve. The OMNR Native Liaison Officer provided information and valuable insight into FN activities on the Forest. In general the various FN issues related to;

- a desire for increased involvement in forest management activities,
- a concern that they needed additional financing and staff capacity to be more involved,
- governance and decision making authority related to crown lands,
- concerns about the transparency of licencing and management responsibilities on the Big Pic Forest (relationship between SFL holder, 686860 Ontario Ltd. and GreenForest Management Inc.).

The chairperson of the LCC attended all the field days during the audit and arranged a meeting with LCC members. The LCC was concerned about the amalgamation with the Terrace Bay LCC and the resulting workload, potential loss of local knowledge, and the impact on recruiting and retaining LCC members due to increased time and travel.

GreenForest staff assigned to represent the 686860 Ontario Ltd. participated in the field audit and/or were interviewed by audit team members. The main issue was the future of the SFL licence.

OMNR staff participated in the field audit, and/or were interviewed (including the retired District Manager). Their issues included the future of the SFL and on-going management of the Forest.

A woods industry contractor and a trapper were interviewed. They reported they had good relations with the OMNR and the company when it was operating. Two members of the tourism industry were contacted. One operator expressed a concern that the company was not sufficiently diligent in following-up on his interest in the RSA process.

Appendix 5

List of Acronyms Used

ACOP	Annual Compliance Operations Plan
AHA	Available Harvest Area
AOC	Area of Concern
AR	Annual Report
AWS	Annual Work Schedule
BFPL	Buchanan Forest Products Ltd
BRLI	Black River Logging Inc.
Bw	White Birch
Ce	Cedar
CFSA	Crown Forest Sustainability Act
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
EA	Environmental Assessment
EMS	Environmental Management System
Es	Ecosite
FIM	Forest Information Manual
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FN	First Nation
FOP	Forest Operations Prescription
FRI	Forest Resource Inventory
FSC	Forest Stewardship Council
FTG	Free-to-Grow
FU	Forest Unit
Ha	Hectares
IEA	Individual Environmental Assessment
IFA	Independent Forest Audit
IFAPP	Independent Forest Audit Process and Protocol
Inc.	Incorporated
Kms	Kilometres
La	Larch
LCC	Local Citizens Committee
Ltd.	Limited
LUP	Land Use Plan
m^3	Cubic Metres
MPI	Marathon Pulp Inc.
MOA	Memorandum of Agreement
NDPEG	Natural Disturbance Pattern Emulation Guidelines
NIC	Not-in-Compliance
OMNR	Ontario Ministry of Natural Resources
Po	Poplar
PMS	Preferred Management Strategy
RD	Regional Director
R.P.F.	Registered Professional Forester
SARO	Species at Risk Ontario
Sb1	Black Spruce
SEM	Silvicultural Effectiveness Monitoring

SFL	Sustainable Forest Licence
SFMM	Strategic Forest Management Model
SGR	Silvicultural Ground Rule
Sp1	Spruce
SPF	Spruce/Pine/Fir
STP	Silvicultural Treatment Package
TOR	Terms of Reference
Vs.	Versus

Appendix 6

Audit Team Members and Qualifications

Name	Role	Responsibilities	Credentials
Mr. Bruce Byford R.P.F. Arbex Forest Resource Consultants Ltd.	Lead Auditor Forest Management & Silviculture Auditor	Audit Management & coordination Liaison with OMNR & Auditee Review documentation related to forest management planning and review and inspect silviculture practices Determination of the sustainability component.	B.Sc.F. ISO 14001 Lead Auditor Training. FSC assessor training. 30 years of consulting experience in Ontario in forest management planning and resource inventory. Previous work on 13 IFA audits with lead auditor responsibility on 11 IFA. 16 FSC certification assessments with lead audit responsibilities on 7.
Mr. Al Stewart Arbex Senior Associate	Wildlife/First Nations Auditor	Review & inspect AOC documentation & practices First Nations consultation Determination of the sustainability component.	B.Sc. (Agr) ISO 14001 Lead Auditor Training. FSC assessor training. 41 years experience in natural resource management planning, field operations, policy development, auditing and working with First Nation communities. Previous work experience on 13 IFA audits.
Mr. David Watton Arbex Senior Associate	Forest Management Planning & Public Participation Auditor	Review documentation and practices related to forest management planning & public participation Determination of the sustainability component.	B.Sc., M.Sc. ISO 14001 Lead Auditor Training. 41 years experience in natural resource management planning, land use planning, field operations, and policy development. Previous work experience on 12 IFA audits.

Mr. Trevor Isherwood R.P.F. Tri-lac Forestry Services Arbex Senior Associate	Silvicultural, Forest Management and Contractual Compliance Auditor	Review and inspect silvicultural practices and related documentation Review and inspect documents related to contractual compliance and socio-economics Determination of the sustainability component.	B.Sc.F. Former General Manager of SFL 41 years experience in forest management and operations. Previous work experience on 9 IFA audits.
Mr. Mark Fleming R.P.F.	Technical Advisor - SFMM	Analysis of SFMM model outputs and decision criteria and the determination of the sustainability component.	B.Sc.F. R.P.F. Previous work experience on IFA audits and FSC certification assessments. Experience as OMNR Planning Forester & Unit Forest.
Dorothy Dobrik GIS Specialist Arbex Forest Resource Consultants Ltd.	Administrative Assistant	Administrative Support to the audit including GIS support for the selection of sample sites.	B.A. Geography, Diploma Forestry Tech Diploma GIS Specialist Previous administrative support in IFA and FSC audits.

Appendix 7

Trends Analysis

The Comparison and Trend Analysis of Planned vs. Actual Forest Operations was prepared by the forest management service provider GreenForest Management Inc. The report is included in this audit report without modification or adjustment.

Big Pic Forest MU 067
GreenForest Management Inc.

INDEPENDENT FOREST AUDIT
April 1, 2004 to March 31, 2009

COMPARISON & TREND ANALYSIS OF PLANNED VERSUS ACTUAL FOREST OPERATIONS REPORT

Prepared by:
Jeremy R. Jones, R.P.F.
SFL Manager
GreenForest Management Inc.

Date: August. 20, 2009

REGISTERED PROFESSIONAL FORESTER
JEREMY R. JONES
Seal ONTARIO

Big Pic Forest MU 067
GreenForest Management Inc.

INDEPENDENT FOREST AUDIT
April 1, 2004 to March 31, 2009

COMPARISON & TREND ANALYSIS OF PLANNED VERSUS ACTUAL FOREST OPERATIONS REPORT

Big Pic Forest
2009 Independent Forest Audit

Comparison & Trend Analysis of Planned Versus Actual Forest Operations

INTRODUCTION

This comparison and trend analysis report has been prepared in accordance with the requirements of Appendix C of the *Independent Forest Audit Process and Protocol* (OMNR, February 2008, and updated January 2009).

The following report was prepared by Jeremy Jones, R.P.F., GreenForest Management Inc. for Arbex Forest Resource Consultants Ltd. as a requirement for the 2009 Independent Forest Audit of the Big Pic Forest (MU 067). The period of this Independent Forest Audit (IFA) is April 1st, 2004 to March 31st, 2009 (five fiscal years). It is important to note that the activities for the audit period falls within the 2002-2007 Forest Management Plan (FMP) for the Big Pic Forest which was written by Dick Fry, R.P.F., 686860 Ontario Ltd. and the 2007-2017 Forest Management Plan (FMP) for the Big Pic Forest which was written by Richard Shwedack, R.P.F., 686860 Ontario Ltd. The purpose of this report is to evaluate various primary management components on the Big Pic Forest, to compare planned versus actual levels of forest operations, and to discuss trends as they pertain to the management of the Forest.

During the audit period the Big Pic Forest (the Forest) was licenced to Marathon Pulp Inc. (MPI) under the terms and conditions of Sustainable Forest Licence No. 542004 dated February 14, 1996, and having a term extending from April 1, 1996 to March 31, 2016. The head office for Marathon Pulp Inc. was located in Marathon, Ontario.

Due to difficult economic times, the current SFL holder (MPI) no longer exists and the SFL is the responsibility of the receiver, Price Waterhouse Cooper (PWC).

The Forest is located primarily in OMNR's Wawa District and Northeast Administrative Region. A small portion of the licence near Marathon is in the Ministry's Nipigon district of the Northwest Region. For the purpose of practical administration, the Manitouwadge Area Office of the Wawa District administers the Ministry's forest management responsibilities on the Forest and the Terrace Bay Area Office of the Nipigon District administers all other resource management matters, within the Nipigon District portion of the forest.

Information For This Report

The following Tables (and associated graphic illustrations) are appended to the text of this report:

Table 1: Summary of Total Area Under Management
Table 2: Description of Forest Units
Table 3: Summary of Planned & Actual Harvest Volumes – Normal Harvest

Table 4: Summary of Planned & Actual Depletion Area
Table 5: Summary of Managed Productive Forest by Forest Unit
Table 6: Summary Report of Renewal, Tending and Protection Operations
Table 7: Harvested Area Successfully Regenerated – Summary of All Forest Units

All information presented in this report related to "Planned" operations incorporates all applicable amendments made to the 1997-2017, 2002-2022 and 2007-2017 FMPs. With respect to the 2007-2012 term "Actual" harvest area, volume figures and renewal and tending, only the 2007-2008 figures are included.

Where applicable, the projected / planned / actual information has been presented as an "***annualized***" figure. The number of years over which data has been annualized is described in the discussion for each applicable table prepared in this report. Tables 3, 4 & 6 present data in an annualized format.

The 2006-2007 Annual Report (representing the final year of the 2002-2007 term), 1997-2002 Report of Past Forest Operations (RPFO), the *Comparison and Trend Analysis of Planned vs Actual Forest Operations Report for the period April 1, 1994 to March 31, 1999*, the *Comparison and Trend Analysis of Planned vs Actual Forest Operations Report for the period April 1, 1999 to March 31, 2004*, as well as current and previous FMPs should be reviewed for more information on forest management operations, problems and issues for the Big Pic Forest.

Minor discrepancies between various referenced Forest Management Plan or Annual Report Tables and the attached Trend Analysis Tables are due to rounding.

SUMMARY OF TOTAL AREA UNDER MANAGEMENT

Table 1 presents a summary of total area under management for the 1997-2002, 2002-2007 and 2007-2012 plan terms.

During the plan terms included in Table 1, there were several landbase changes to the SFL area, resulting primarily from:

- The creation of four conservation reserve additions through Ontario's Living Legacy process.

The net result of these changes was an increase in the Total Production Forest area from 612,958 hectares to 604,744 hectares between the 1997 and 2007 plan periods.

As illustrated graphically in the figure associated with Table 1, area changes worthy of highlighting include:

- The differences in Non-productive and Protection forest is from going from a paper map source to digital map source. Also, updated base information at the beginning of each plan results in minor changes.

- The area classified as barren & scattered (B&S) or not-sufficiently restocked (NSR) during 1997-2002, 2002-2007 FMP's, were grouped. In the 2007-2017 these areas are shown as separate but when these numbers are combined they are similar to past plans.

- The subsequent minor increase in area classified as barren & scattered (B&S) or not-sufficiently restocked (NSR) between 2002-2007 and 2007-2012, due primarily to updating of the 2007 FMP planning inventory, which took into consideration re-classification of area affected by large natural disturbances (areas associated with the 2003 wildfires in the Michal Lake area)

- The comparison of forest units is done for the first two plans but since provincial working groups were used in the 2007 FMP they were compared as best suited.

- A new Forest Resource Inventory on the horizon for 2012 will improve the Forest information that is currently out-of-date.

DESCRIPTION OF FOREST UNITS

Table 2 presents a description of the forest units used in the 1997-2002, 2002-2007 and 2007-2012 terms.

A total of nine forest units were defined in the 1997-2002 FMP. FRI working group species was used as the primary descriptor of forest unit (eg. jack pine working group = jack pine forest unit), with the exception of the combination of black and white spruce working groups into a Spruce forest unit, the combination of cedar and larch working groups into the Other Conifer forest unit and the ash working group described as an Other Hardwood forest unit. As the forest is comprised of a large proportion of mixedwood forest types, associated volumes are not easily estimated in this manner (significant conifer volume associated with hardwood forest units/working groups; or vice-versa).

With the availability of the Geographic Information System (GIS) for the preparation of the 2002-2022 FMP, more efficient manipulation of digital FRI information was possible, resulting in more complex analyses of criteria to derive forest units (compare the forest unit FRI parameters & criteria for the 1997-2002 and 2002-2007 plan terms in Table 2). As a result, the number of forest units derived for the 2002-2007 FMP was increased to ten. The forest units are based on FRI species composition and grouped into three main forest types – *generally* pure conifer, *generally* pure hardwood and mixedwood. The refinement of three mixedwood forest units (Conifer-dominated Mixedwood, Hardwood dominated Mixedwood and Mixedwood) facilitates better volume estimations and sustainable management of these forest types.

The 2007-2017 FMP uses the same forest unit classification as the 2002-2022 FMP with one minor change to the SB1 forest unit. The percent of black spruce was increase from 70% to 80% to represent the lowland condition.

General Trends

- In general, relative to those used in the 1997-2002 FMP, the forest units used in the 2002-2007 and 2007-2012 plan terms more accurately portray forest stand conditions and, most importantly, facilitate the management of mixedwood forest types.

SUMMARY OF PLANNED & ACTUAL HARVEST VOLUMES

Normal Harvest Volume Utilization

Table 3a and the associated graph present the summary of planned and actual volumes for normal harvest areas. The volume presented is the "utilized" volume. All planned and actual harvest volumes are annualized over five years (volume divided by five) except for the actual volumes for the 2007-2012 term. For the 2007-2012 term, only volume delivered in 2007-2008 and reported in the 2007-2008 Annual Report are available.

Only 80% of the planned annualized 1997-2002 FMP volume was actually harvested. The least marketable species during this plan period (Poplar, white birch, cedar and larch) had the lowest harvest and utilization levels. The more readily marketable species (spruce, jack pine, balsam fir and poplar) had a greater proportion of their planned volume harvested and utilized.

During the 2002-2007 term, 109% of the planned annualized volume was actually harvested. The volume increase was due to a wildfire amendment in 2004. Utilization was aided by a high demand for poplar by a local sawmill and pulp and paper mill. In general, volume harvested slowly declined throughout the term.

In the first year of the 2007-2012 term (2007-2008), 42% of the planned annualized volume was actually harvested. The first part of the year started out as a normal operating year with slightly lower marketability. As the year progressed the pulp and roundwood markets came to a halt. The markets are still in shutdown mode and are slowly showing some recovery.

General Trends

- Volume utilization, particularly for poplar, improved between the 1997-2002 and the 2002-2007 terms. However, due to local mill closures and reduced demand from pulp and paper producers, poplar utilization again became a concern in the final years of the 2002-2007 term. At present, poplar utilization continues to be an issue.

- There will be a significant decrease in delivered volumes in 2008-2009. Further, unless markets improve dramatically, it will be extremely difficult to realize average annual planned harvest volume figures for the remainder of the 2007-2012 term.

SUMMARY OF PLANNED AND ACTUAL DEPLETION AREA

Table 4 and the associated graph present the summary of planned and actual depletion area, including natural depletions. Planned and actual depletion area is presented by plan term and by forest unit. The table has been arranged to accommodate the change in forest unit classification between the 1997-2002 and 2002-2007 terms. For the 1997-2002 and 2002-2007 terms, all planned and actual area figures are annualized over five-years (area divided by five), while actual values are those reported in the 2007-2008 Annual Report.

Normal Harvest Area

For the 1997-2002 term, the actual normal annualized depletion area (5,465 ha) was 82% of that planned (6,664 ha). Failure to harvest the remainder would be lack of markets during that time period.

For the 2002-2007 term, the actual normal annualized depletion area (7,161.8 ha) was 109% of that planned (6,557 ha). This is primarily due to the focus on wildfire salvage harvest operations in this term. However, normal harvest operations were also affected by mill closures and general poor market conditions in the final years of the term. As the Big Pic Forest is comprised of a large proportion of mixedwood forest types, when poplar utilization by local facilities decreased, 686860 Ontario Ltd.'s ability to harvest both hardwood and softwood species also decreased.

In the first year of the 2007-2012 term (2007-2008), 55% of the planned annualized area was actually harvested. As with the discussion regarding harvested volume, all softwood and hardwood markets remained poor in 2007-2008.

General Trends

- As one would expect, the graph included with Table 4 shows a trend of actual harvest similar to that illustrated by the graph included in the above section *Summary of Planned & Actual Harvest Volumes* (focus returning to normal operations between the 1997-2002 and 2002-2007 terms).

- Due to the high demand for conifer wood fiber, the percent of planned area actually harvested is greater in conifer-dominated forest units.

- As discussed in the section *Summary of Planned & Actual Harvest Volumes*, while the market for poplar fiber improved between the 1997-2002 and the 2002-2007 terms, it has since declined due to local mill closures and reduced demand from pulp and paper producers.

- In light of the unpredictable markets (especially for poplar), the large area of hardwood dominated and mixedwood forest types on the Big Pic Forest create a challenge for both planners and operators. As a result, in 2006-2007, 686860

Ontario Ltd. began to manage such areas under a two-pass silviculture system. Since, operators have been successful in marketing the conifer from the first pass and returning to market the hardwood species. This system has allowed for greater utilization of planned volumes from the 2002-2022 FMP and will help in the future.

SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

Table #5 summarizes the various forest units in each of the three plan terms and compares the available area given in the appropriate plan to the available volume by forest unit and age class.

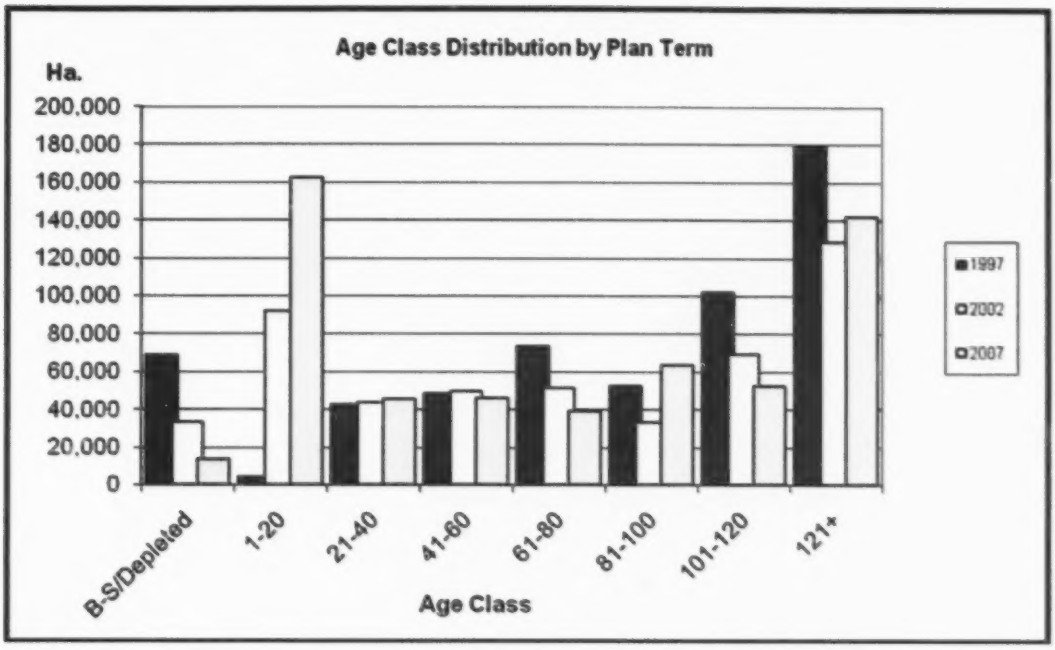
Because of the requirements of the 1997 plan, it was only possible to report the unavailable area for each forest unit and age class for the volumes of the 1992-1997 and 1997-2002 plan terms. The current plan, having being written under the 1996-planning manual, reports the information as required. The unavailable areas in the 2002-2007 FMP are comprised of areas estimated to be reserves.

Summary of Table #5 (Crown Managed Landbase):

(area in hectares)	**1997**	**2002**	**2007**
Protection Forest	12,159	8,104.3	10,804
Unavailable Forest	na	60,336.6	13,593
Available Forest	572,157	502,604.5	551,268
Total Production Forest	572,157	562,941	564,861

Note: There is a discrepancy between the 2002-2007 FMP for the Protection Forest area. The source of the discrepancy was not described within the FMP. Within the 2002-2007 FMP the value from FMP-1 and FMP-2 match at 7,915.2 ha. for the Crown Managed landbase, with a different number from FMP-9 (8,104.3 ha.) which was used in Table #5.

The above summary table clearly shows very little change (<3%) in the total production forest over the 3 planning terms. More detailed classification of the protection forest resulted in a lower area by 2002 and then leveling out in 2007. Forest Resource Inventory corrections and new parks resulted in a combined Production Forest (unavailable and available) forest to decrease in 2002 and then increase in 2007. This was a primary result of a detailed analysis of inoperable areas and reserves on the forest.



The above age class distribution chart shows the trend of age class distribution between the three plan terms, for all forest units combined for the Managed Productive Forest. This data reflects the data within Table 5 for each plan term. The trend shows an increase in area for the 0-20 year age class, which is the result of FTG surveys and NSR areas. There is also a trend for the decreasing of the older age classes (60-120+ years) which is the result of targeting the older age classes within the Forest Management Plan harvest selection criteria. Both these trends will continue to balance the age class distribution on the forest.

SUMMARY OF RENEWAL, TENDING AND PROTECTION OPERATIONS

Table 6 presents the summary of renewal, tending and protection operations (annualized) for the 1997-2002, 2002-2007 and 2007-2012 plan terms, for normal harvest, natural depletion (including salvage) and total area. No protection operations occurred during any term.

The trend between the 1997-2002 and the plan terms reflected an increase in the artificial, SIP and tending operations. Operations in the 2002-2007 trend analysis was affected by one major factor, the 2003 Wawa Fire #13 and #23. These fires both directly and indirectly affected the silviculture program in this term.

For the 1997-2002 and 2002-2007 terms, the natural regeneration levels were well above the planned values. CLAAG areas were planned, but through field inspections, no areas were reported with this prescription.

The actual artificial regeneration slightly lowered in 2002-2007 term of 2,356 hectares annualized from 3,529 hectares annualized in 1997-2002 term. This resulted in an accomplishment of 102% in the 1997-02 term (planned vs. actual) and 82% in the 2002-2007 term. In the 2002-2007 plan term, the underachievement was caused by the cancellation of the 2003 silviculture program due to wildfires. This workload in turn compounded into the following years and is finally coming back on line.

Over the 1997-2002 period no acceptable sites were found that was large enough to accept a seeding prescription. This again resulted in lower targets (40 hectares per year) set for the following 2002-2007 FMP.

The actual site preparation decreased from 3,584 hectares annualized to 1,708 hectares annualized. This resulted in an accomplishment of 103% in the 1997-02 term (planned vs. actual) and 50% in the 2002-2007 term. The under performance in the 1997-2002 plan term was almost entirely related to the wildfires.

The actual tending increased from 2,732 hectares annually to 2,391 hectares annually. This resulted in an accomplishment of 182% in the 1997-02 term (planned vs. actual) and 70 % in the 2002-2007 term with increases due to increased chemical aerial cleaning. During the 1997-2002 plan term, aerial chemical tending significantly overachieved due to backlog areas on the forest, from the previous plan.

Total 2007-2012 Renewal & Tending

For the 2007-2012 term, only 2007-2008 (reported in the 2007-2008 Annual Report) renewal figures are available. There was no natural regeneration reported during this year. Approximately 149% of planned tree planting was conducted and 35% of planned mechanical site preparation was completed. Actual aerial chemical tending was 106% of the annualized planned level. As in previous plan terms, failure to realize planned renewal areas was the direct result of failure to harvest planned harvest levels.

SUMMARY OF HARVESTED AREA SUCCESSFULLY REGENERATED

A total of 24,526 hectares were harvested between the years 1992-1997. A total of 15,882 hectares have been surveyed for regeneration success (64%). Of the area surveyed, 13,945 hectares have been declared successfully regenerated (88%). Therefore, of the area harvested, 57% has been declared FTG. The 1,937 hectares of surveyed area, which has not been successfully regenerated, has been prioritized for future surveys. The 8,644 hectares of unsurveyed area (status unknown) will be monitored and surveyed for regeneration success at the appropriate time.

During the IFA period, FTG surveys were conducted in 2005-2006, 2006-2007 and 2008-2009. Intensive surveys were conducted in 2006-2007 by KBM Forestry Consultants Inc. using aerial photography captured in the summer of 2005. Extensive surveys conducted in 2005-2006 were completed by 686860 Ontario Ltd. by helicopter.

In general, the progress of all post-harvest silvicultural treatments (natural and artificial) is now monitored with more diligence, relative to historical regeneration monitoring programs. It is evident, based on the availability of post-harvest information, that past harvest areas artificially regenerated (that is, where dollars were invested) were deemed priority for progress monitoring over natural regeneration areas. As no formal silvicultural prescriptions are documented for the treatment of areas harvested prior to 1997, one can only assume that desired results were achieved. For example, one may surmise that if jack pine was tree planted, then a future forest with a jack pine working group was the anticipated result. With more stringent prescription and monitoring processes now required, future evaluations of achievement of successful forest regeneration, as anticipated by treatments, will be possible.

BIG PIC FOREST

INDEPENDENT FOREST AUDIT
April 1, 2004 to March 31, 2008

COMPARISON & TREND ANALYSIS OF PLANNED VERSUS ACTUAL FOREST OPERATIONS

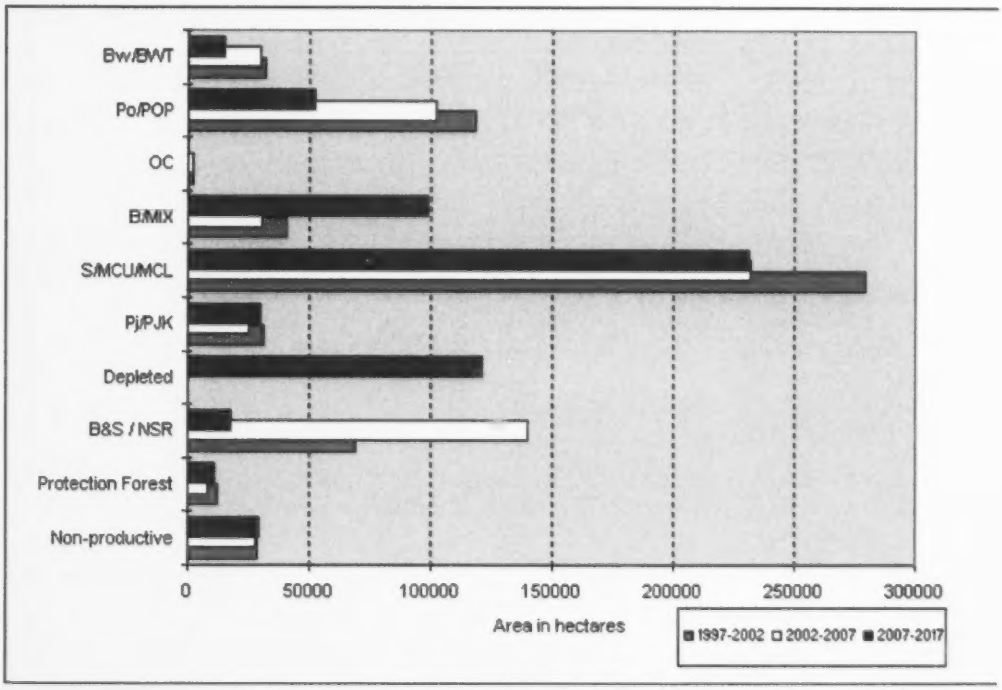
TABLES & GRAPHS

2009 Independent Forest Audit
Table 1 - Summary of Total Area Under Management

Past and Current Plans - Crown Managed

MU: **Big Pic Forest**

Land Type			Area in hectares		
			Past Plans		Current
		Plan Term	1997-2002	2002-2007	2007-2017
Non-Forested					
Other Land			4,153.0	4,277	4,308
Forested					
Non-productive			28,642	27,739	29,108
Productive					
Protection			12,159	7,915	10,804
Production Forest					
	Below Regen Standard		68,741	140,187	17,396
	Recent Disturbance		-	-	121,184
	Working Group				
	Pj/PJK		31,394	25,162	29,659
	S/MCU/MCL		278,811	232,051	231,131
	B/MIX		40,610	30,344	98,502
	OC		2,176	2,009	-
	Po/POP		118,480	102,202	51,849
	Bw/BWT		31,945	29,808	15,142
Total Production Forest			572,157	561,763	564,862
Total Forested Land			612,958	597,418	604,774



Source: FMPM Table FMP-1, FMP-2
TMPM Table 4.8.2

2009 Independent Forest Audit
MU: Big Pic Forest

Table 2 - DESCRIPTION OF FOREST UNITS (FMP-3)

Plan Term	Forest Unit Code	Forest Unit Name	Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
See attached PDF for 2007-2017 plan FU description								
2002-2007	SBOG	Spruce Bog	Conifer	Sb	13	NA	Sb+La>=0.7 and SC = 4	Sb9La1 - Avg. Stocking 48%
	SB1	Black Spruce	Conifer	Sb	5,6,8,9,11,12,13	Clearcut	Sb<=0.7 and Pj<=0.1	Sb9Po1 -Avg. SC 1.8 - Avg. Stocking 71%
	PJ1	Jack Pine	Conifer	Pj	2,3,4	Clearcut	Pj>=0.7 and Po+Bw<=0.2	Pj8Sb1Po1 -Avg. SC 1.9 - Avg. Stocking 81%
	LC1	Lowland Conifer	Conifer	Sb	1,9,12,13	Clearcut	Ce+La+Sb>=0.8 and Pj<=0.1	Sb6Ce3La1 -Avg. SC 2.3 - Avg. Stocking 69%
	PJ2	Pine/Spruce Mixed	Conifer	Pj	1,3,4	Clearcut	[illegible] and Pj+Sb+Bf+Sw+Ce+La>=0.7 and Bf+Sw+Ce+la<0.2)) and	Pj6Sb3Po2 -Avg. SC 1.9 - Avg. Stocking 75%
	SP1	Spruce/Pine Mixed	Conifer	Sb	3,5	Clearcut	Sb+Sw+Bf+Pj+Ce+La>0.7 and (Bf+Ce+La+Sw<=0.2 and Pj>=0.3)	Sb6Pj3Po1 -Avg. SC 1.3 - Avg. Stocking 74%
	SF1	Spruce/Fir	Conifer	Sb	3,5,6,8,9,11	Clearcut	Sb+Sw+Bf+Ce+La+Pj>=0.7	Sb5Bf2Po1Bw1Pj1 -Avg. SC 1.4 - Avg. Stocking 69%
	PO1	Poplar	Intolerant hardwood	Po	1,3,6,7,10	Clearcut	Po+Bw>=0.7 and Po>=0.5	Po7Sb1Bw1Bf1 -Avg. SC 2.1 - Avg. Stocking 84%
	BW1	White Birch	Intolerant hardwood	Bw	1,3,6,7,10	Clearcut	Po+Bw>0.7	Bw6Sb2Po1 -Avg. SC 2.1 - Avg. Stocking 76%
	MW1	Mixedwood Pine	Mixedwood	Po	1,3,10	Clearcut	Pj>0.2	Po4Pj3Sb2Bw1 -Avg. SC 2.1 - Avg. Stocking 80%
	MW2	Mixedwood Spruce	Mixedwood	Po	1,6,10	Clearcut	Sb+Sw>0.2 or Po+Bw>0.2	Sb3Po3Bw2Bf2 -Avg. SC 1.9 - Avg. Stocking 73%
1997-2002	BS1		Conifer	Sp	V-types: 34, 35, 36, 30, 24, 25, 33	Clearcut - CLAGG		Comprised of black spruce, spruce and, rarely white spruce working group stands growing on site class X, 1, 2 and which are comprised of more than 70% all spruce
	BS3		Conifer	Sp	V-types: 22, 23, 35, 36	Clearcut - CLAGG		Comprised of black spruce, spruce and, infrequently white spruce working group stands growing on site class 3 sites. It also includes all other conifer (cedar and larch) working group stands
	JP		Conifer	Pj - Sp - P	V-types: 30, 18, 20, 28, 29, 31	Clearcut		Comprised of stands that are 30% or more jack pine and hardwood species combined accounts for less than 30% of the stand. Typically these are the pure jack pine stands or jack pine - black spruce mixtures
	JPM		Mixedwood	Po - Pj - S	V-types: 10, 11, 17, 18	Clearcut		Comprised of stands that are 30% or more jack pine and hardwood species combined accounts for than 30% of the stand or more. This type of stand is a mixedwood stand where jack pine is the primary conifer species
	S		Conifer	Sp - Bf	V-types: V15, 16, 24, 25, 33, 14, 15, 16, 25, 33	Clearcut		Comprised of stands in the balsam fir, black spruce, spruce, and white spruce working groups which are less than 30% jack pine, less than 30% hardwood spaices (poplar, birch, ash) and less than 80% spruce. These stands are typically the upland spruce-fir-popular-birch stands
	MA		Mixedwood	Po - Sp - B	V-types: 6, 7, 8, 9, 10, 11, 14, 15, 16, 19, 20	Clearcut		Comprises of stands that are less than 30% jack pine and from 30 to 60% hardwood species of which poplar and balsam poplar accounts for 50% or more of the hardwood species
	MB		Mixedwood	Bw - Sp -	V-types: 4, 6, 8, 14, 15, 16, 20, 5, 7, 9, 19	Clearcut		Comprises of stands that are less than 30% jack pine and from 30 to 60% hardwood species of which white birch accounts for 50% or more of the hardwood species
	PO		Intolerant Hardwood	Po	V-types: 1, 5	Clearcut		Comprises of stands in the poplar working group which are less than 30% jack pine and more than 60% hardwood
	BW		Intolerant Hardwood	Bw	V-types: 4, 5	Clearcut		Comprises of stands in the white birch working group which are less than 30% jack pine and more than 60% hardwood

Table 3 - Summary of Planned & Actual Harvest Volumes
MU: Big Pic Forest

Average Planned Annual Harvest Volumes

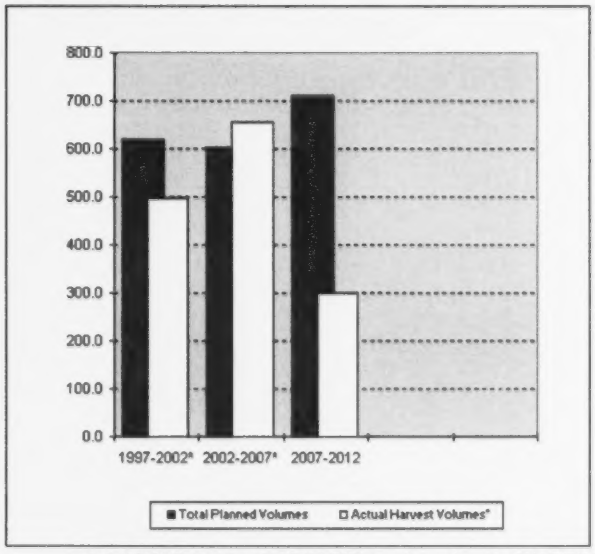
Volumes are Annualized for the indicated 5 year period

Species	*Volume in '000's cubic metres*		
	Past Plans		Current
	1997-2002	2002-2007	2007-2012
Pj	67,396	41,182.2	64,602.8
Sb	-	399,336.0	319,337.1
Sw	-	8,572.0	10,397.5
Sp All	368,102	-	-
B	15,977	2,097.4	56,554.1
Ce	-	3,162.8	5,785.6
L	-	2,430.4	845.2
OC	-	-	-
Po	166,520	119,295.8	187,346.5
Bw	1,240	26,181.6	65,791.7
	-	-	-
Total Planned Volumes	619,234.8	602,258.2	710,660.6

Actual Harvest Volumes

Volumes are Annualized for the indicated 5 year period

Species	*Volume in '000's cubic metres*		
	Past Plans		Current
	1997-2002	2002-2007	2007-2012
Pj	86,462	97,311	30,296
Sb	-	2	-
Sw	-	-	-
Sp All	302,101	420,473	220,412
B	3,025	1,822	5,141
Ce	1,358	660	18
L	2,049	2,619	441
OC	-	-	-
Po	102,015	131,019	35,005
Bw	809	1,277	8,623
	-	-	
Total Actual Volumes	497,820.2	655,184.2	299,936.0
	80%	109%	42%



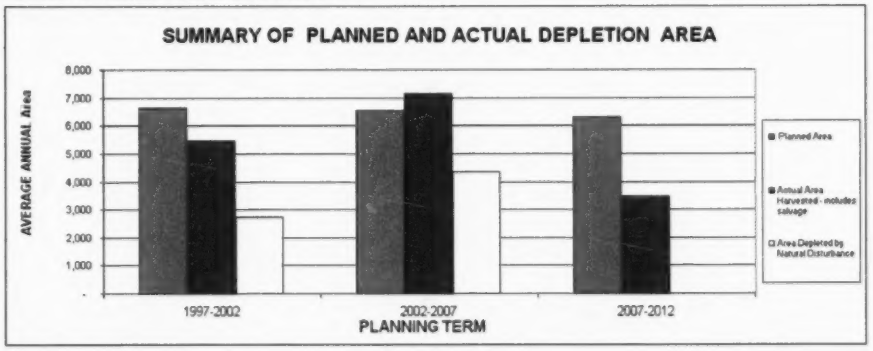
Actual TMPM Table 4.3.1, 1996 FMPM RPFO-4 and annual reports, 2004 FMPM AR-4

Table 4 - Summary of Planned & Actual Depletion Areas
MU: BIG PIC FOREST

Area is annualized for the indicated 5 year period												
Planned Annual Harvest Area					**Actual Depletion Area**							
Area in hectares					*Area in hectares*							
	Past Plans			Current	Past Plans						Current Plan*	
Plan Term	1997-2002	2002-2007	2007-2012		1997-2002 Harvest	1997-2002 Natural	2002-2007 Harvest	2002-2007 Natural	2007-2008 Harvest	2007-2008 Natural
SB1	-	2,435	951		-	-	2,505.0	1,188.4	869.0	-
PJ1	-	61	61		-	-	62.2	52.4	86.0	-
LC1	-	-	50		-	-	-	26.6	8.0	-
PJ2	-	254	227		-	-	254.2	65.8	340.0	-
SP1	-	372	1,576		-	-	413.2	593.2	1,176.0	-
SF1	-	1,513	634		-	-	1,612.8	659.0	328.0	-
PO1	-	847	1,107		-	-	1,064.6	726.2	226.0	-
BW1	-	46	86		-	-	48.4	147.6	-	-
MW1	-	330	195		-	-	328.2	47.8	184.0	-
MW2	-	700	1,417		-	-	873.2	835.4	228.0	-
BOG							-	4.6		
BS1	1,971	-	-		1,686.8	333.2	-	-	-	-
BS3	38	-	-		43.4	17.0	-	-	-	-
JP	606	-	-		495.6	63.2	-	-	-	-
JPM	240	-	-		183.0	100.2	-	-	-	-
S	848	-	-		696.5	1,419.0	-	-	-	-
MA	1,606	-	-		1,267.3	611.2	-	-	-	-
MB	330	-	-		276.7	105.0	-	-	-	-
PO	987	-	-		729.5	85.2	-	-	-	-
BW	39	-	-		33.0	-	-	-	-	-
IS					51.9	15.2	-	-		
IH					2.1	-	-	-		
							-	-		
Spruce	-	-	-		-	-	-	-	-	-
Balsam Fir	-	-	-		-	-	-	-	-	-
Jack Pine	-	-	-		-	-	-	-	-	-
Other Conifer	-	-	-		-	-	-	-	-	-
Poplar	-	-	-		-	-	-	-	-	-
White Birch	-	-	-		-	-	-	-	-	-
							-	-		
Total Area	6,664	6,557	6,303		5,465.8	2,749.2	7,161.8	4,347.0	3,465.0	-

* ***The Actual Current values are obtained from the 2002-2003 Annual Report.***

SUMMARY OF PLANNED VS ACTUAL DEPLETION AREA



Source:

Planned Annual Harvest Area:
a) 1997-2002 Term: refer to 1997-2017 TMP 4.15
b) 2002-2007 Term: refer to 2002-2022 FMP-18
c) 2007-2012 Term: refer to 2007-2017 FMP-15 phase 1

Actual Harvest Area:
a) 1997-2002 term: refer to 1997-2002 RPFO 1 for NATURAL and HARVEST data.
b) 2002-2007 Term: refer to 2002-2007 AR-1 for HARVEST data and FRI plus OFNDD database.
c) 2007-2008 Term: refer to 2007-2008 AR-1 for HARVEST data.

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9, FMP-4)
PLANNING TERMS: 1997-2002-2007

Age Class	1997	2002	2007
B-S/Depleted	68,741	33,515	13,594
1-20	4,224	92,227	162,962
21-40	42,656	43,832	45,243
41-60	48,676	49,740	45,990
61-80	73,617	51,581	39,132
81-100	52,357	33,403	63,575
101-120	102,200	69,236	52,279
121+	179,686	129,071	142,088
Total	572,157	502,605	564,862

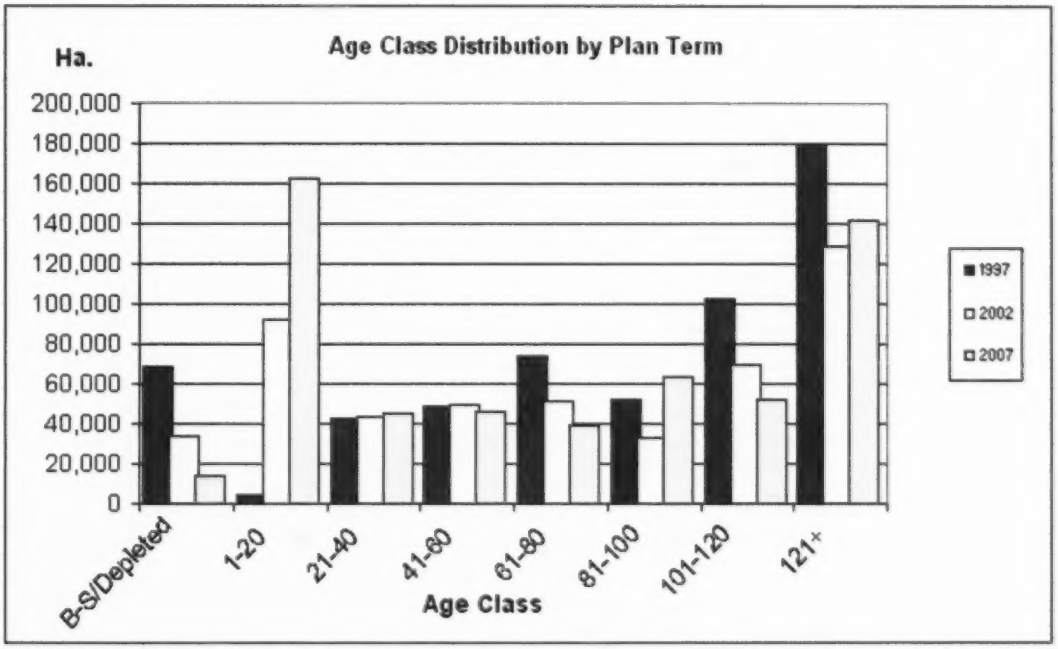


Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)
PLANNING TERM: 1997-2002

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m3)	(ha)	(m^3)		(ha)	(m^3)
Sp	B-S						53,084	
	0-20						1,572	
	21-40						13,501	
	41-60						18,225.0	
	61-80						28,168	
	81-100						19,298	
	101-120						63,514	
	121+						134,533	
	FU Total	4,601.0	-	-	-	-	331,895	-
Pj	B-S						5,335	
	0-20						828	
	21-40						4,335	
	41-60						3,124	
	61-80						11,849	
	81-100						2,980	
	101-120						3,418	
	121+						4,860	
	FU Total	491	-	-	-	-	36,729	-
Bf	B-S						3,128	
	0-20							
	21-40						2,747	
	41-60						7,643	
	61-80						15,566	
	81-100						13,010	
	101-120						1,226	
	121+						418	
	FU Total	49	-	-	-	-	43,738	-
OC	B-S						85	
	0-20							
	21-40							
	41-60						20	
	61-80						58	
	81-100						79	
	101-120						415	
	121+						1,604	
	FU Total	258	-	-	-	-	2,261	-
Po	B-S						5,473.0	
	0-20						1,812.0	
	21-40						21,448.0	
	41-60						15,014.0	
	61-80						13,177.0	
	81-100						11,168.0	
	101-120						24,679.0	
	121+						31,182.0	
	FU Total	1,662	-	-	-	-	123,953	-
BW	B-S						1,636	
	0-20						12	
	21-40						625	
	41-60						4,650	
	61-80						4,799	
	81-100						5,822	
	101-120						8,948	
	121+						7,089	
	FU Total	5,098	-	-	-	-	33,581	-
	Total	12,159	-	-	-	-	572,157	-

Source:
a)1997-2002 Term: refer to 1997-2017 TMP 4.8.2 and 4.9

Table 9 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP 4)
PLANNING TERM: 2002-2007

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m3)	(ha)	(m3)		(ha)	(m3)
SB1	0-5						20,776.3	
	1-20	5.6	-	2,481.5	-		60,767.4	
	21-40		-	514.7	-		6,176.3	24,696
	41-60		-	691.5	18,034		7,158.8	393,734
	61-80		-	797.1	63,769		8,613.1	689,058
	81-100		-	498.6	51,355		4,983.4	511,221
	101-120		-	1,696.5	203,580		28,317.5	3,398,100
	121-140	47.8	5,306	3,580.9	397,478		40,876.5	4,537,297
	141-160			2,412.6	224,390		21,663.5	1,982,758
	161+			327.2	17,896		1,413.6	77,172
	FU Total	53.4	5,306	12,960.4	996,502		209,727.2	11,914,038
PJ1	0-5						1,025.7	
	1-20			223.6			5,189.5	-
	21-40			192.3	4,600		2,296.7	98,757
	41-60	71.4	7,354	76.0	7,827		643.4	66,267
	61-80	53.1	7,789	278.0	38,627		1,119.3	159,786
	81-100		-	43.1	6,850		519.3	82,667
	101-120			19.1	3,094		306.9	48,028
	121-140			52.0	5,747		344.5	38,096
	141-160			1.0	15		33.3	1,325
	161+							
	FU Total	126.5	15,123	791.1	66,490		11,480.9	776,926
LC1	0-5			5.8			22.2	
	1-20	2.9		29.7	30		93.3	
	21-40			0.6	3		843.3	843
	41-60			4.1	101		64.4	522
	61-80			5.9	330		88.9	2,177
	81-100			101.6	7,927		85.1	4,766
	101-120	7.0	546	119.7	9,396		999.4	77,875
	121-140	71.8	5,536	148.9	10,569		1,584.4	124,775
	141-160	48.8	3,408	38.2	1,957		1,686.4	119,628
	161+	176.0	8,909				252.3	12,919
	FU Total	302.0	18,437	454.5	30,313		5,717.2	342,899
PJ2	0-5						8,281.5	
	1-20			131.6			2,396.7	85,155
	21-40	14.0	697	111.3	3,950		1,213.3	109,195
	41-60	112.0	10,080	327.7	29,495		1,689.8	703,977
	61-80	28.0	1,589	597.4	71,319		1,285.1	190,897
	81-100	20.0	2,970	83.5	12,400		1,775.6	266,131
	101-120		-	119.4	17,486		1,235.8	110,600
	121-140		-	260.3	49,000		256.6	13,050
	141-160		-	80.4	3,878			
	161+		-					
	FU Total	174.0	15,121	1,609.4	164,638		21,988.6	1,471,005
SP1	0-5							
	1-20			85.7			2,408.3	
	21-40			34.7			913.3	18,722
	41-60			115.0	7,071		602.5	37,053
	61-80			627.6	60,561		1,921.1	178,191
	81-100			35.3	4,362		892.7	110,298
	101-120			139.5	18,514		2,333.1	309,698
	121-140			300.0	30,797		3,208.2	329,819
	141-160			49.2	3,667		488.7	36,409
	161+			1.1	51		79.4	3,856
	FU Total			1,396.1	125,063		14,843.0	1,215,957
ST1	0-5						945.3	
	1-20			503.0	274		9,156.1	2,078
	21-40			325.6	5,580		7,261.5	130,706
	41-60			1,697.9	79,880		8,287.1	389,691
	61-80	10.7	728	3,629.9	256,035		14,883.1	1,012,050
	81-100			1,813.4	145,975		11,661.9	938,762
	101-120			778.7	63,849		9,809.2	804,357
	121-140	60.0	3,709	2,173.6	136,936		11,566.4	979,291
	141-160			2,220.2	111,812		6,987.7	348,687
	161+	26.7	857	830.4	26,656		1,903.9	61,015
	FU Total	97.4	5,293	13,372.7	776,379		83,416.5	4,667,293
PO1	0-5						1,635.2	
	1-20	21.0		528.5			3,987.3	
	21-40			282.5	11,160		9,861.3	357,200
	41-60	161.0	16,095	561.6	60,119		10,039.4	1,114,372
	61-80	227.0	17,909	644.9	107,895		6,652.1	1,077,506
	81-100	244.0	49,410	1,168.3	216,573		4,639.7	939,567
	101-120			655.5	117,987		9,608.2	2,022,518
	121-140	5.0		1,087.5	171,782		11,375.1	1,939,666
	141-160			151.4	8,706		623.7	35,863
	161+			1.2	47		31.4	457
	FU Total	662.0	113,414	4,981.6	756,067		57,451.3	7,665,929
BW1	0-5						825.6	
	1-20	34.0		75.8			5,107.6	
	21-40			7.9			221.1	1,814
	41-60	613.0		712.1	19,878		1,982.8	111,062
	61-80	488.0		181.9	10,956		1,619.3	131,137
	81-100			364.5	32,900		803.5	78,760
	101-120	3.0		1,920.6	185,360		1,285.1	124,101
	121-140			1,210.8	83,125		1,502.5	100,656
	141-160	298.0		2,098.4	75,608		206.6	5,475
	161+							
	FU Total	1,582.0		6,752.0	421,787		13,417.4	550,971
MW1	0-5							
	1-20			128.7			3,647.4	
	21-40	7.0		281.2	8,638		4,223.5	139,287
	41-60	63.0		440.6	19,873		2,906.4	263,030
	61-80	401.0		271.7	36,542		1,884.3	322,940
	81-100	17.0		261.9	32,015		1,665.1	250,018
	101-120			208.1	31,677		1,061.9	465,403
	121-140			128.7	9,393		1,484.4	106,899
	141-160			26.5	711		55.5	4,510
	161+						5.3	89
	FU Total	488.0		1,681.4	158,889		20,813.8	1,751,576
MW2	0-5							
	1-20			165.1	-		4,676.3	
	21-40			417.8	9,818		11,765.3	145,089
	41-60	356.0		1,781.7	115,811		12,555.3	663,322
	61-80	122.0		1,781.9	171,041		7,715.3	865,620
	81-100	21.0		3,915.0	479,588		6,595.9	808,018
	101-120	121.0		2,073.3	219,163		12,281.7	3,539,688
	121-140	8.0		1,976.5	156,144		11,383.5	3,229,267
	141-160	110.0		3,693.2	177,276		4,701.2	1,041,136
	161+	5.0		725.1	21,028		1,287.2	88,916
	FU Total	743.0		16,469.6	1,359,867		72,927.1	9,934,053
SB00	0-5							
	1-20	21.0						
	21-40							
	41-60							
	61-80	116.0						
	81-100	119.0						
	101-120	670.0						
	121-140	2,211.0						
	141-160	664.0						
	161+	132.0						
	FU Total	3,516.0						
	Total	8,104.1	154,778	80,138.6	6,861,909		332,808.3	39,761,083

Source:

Table 6 - SUMMARY REPORT OF RENEWAL, TENDING AND PROTECTION OPERATIONS (RPFO-7)
MU: BIG PIC FOREST

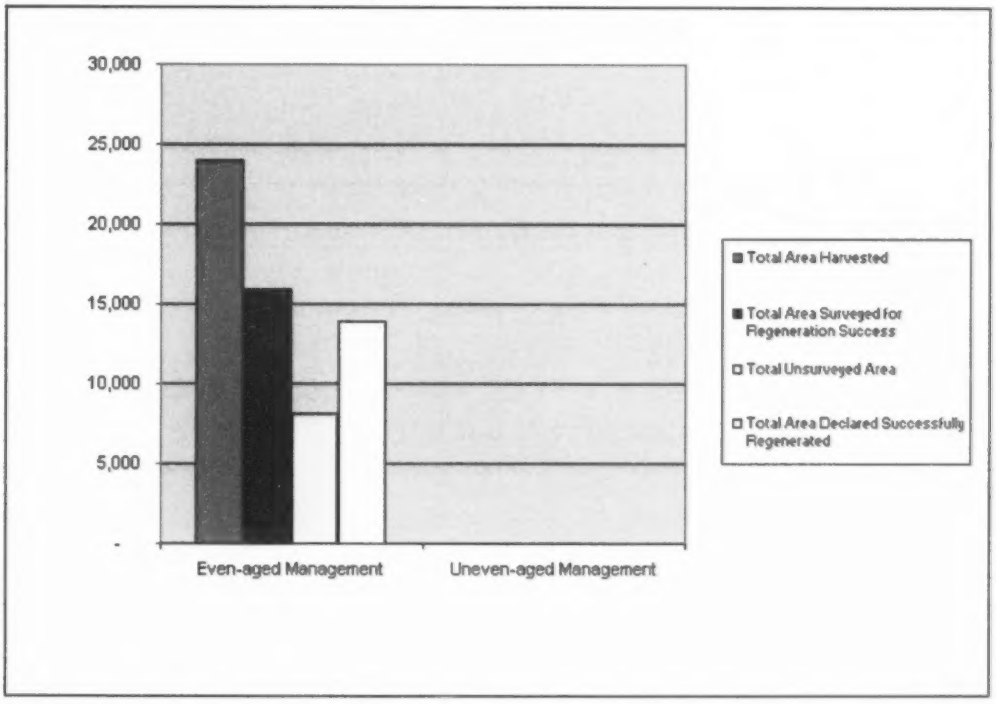
	Area by Future Forest Unit (ha)					
	<1997-2002>		<2002-2007>		<2007-2012>	
	Planned	Actual	Planned	Actual	Planned	Actual
Renewal						
Regeneration						
Uneven-Aged Management						
Selection Cut - Harvest	-	-	-	-	-	-
Total Uneven-Aged Management	-	-	-	-	-	-
Even-Aged Management						
Natural Regeneration				-		
Clearcut	1,166	5,871	2,691	3,215	3,699	-
CLAAG	554	-	-	-	-	-
Seed Tree Cut	-	-	-	-	-	-
Uniform Shelterwood Seed Cut	-	-	-	-	-	-
Subtotal Natural	1,720	5,871	2,691	3,215	3,699	-
Artificial Regeneration						
Planting bareroot and container (hectares)	3,452	3,529	2,870	2,356	3,578	5,326
bareroot and container (000s)	5,226	6,432	3,582	4,395	-	8,010
				-		-
Seeding direct	341	-	40	-	-	-
with site preparation	-	-	-	-	-	-
Scarification	-	-	-		-	-
Total Plant (Ha)	3,452	3,529	2,870	2,356	3,578	5,326
Total trees(000s)	5,226	6,432	3,582	4,395	-	8,010
Subtotal Artificial	3,793	3,529	2,910	2,356	3,578	5,326
Total Even-Aged Management	5,513	9,400	5,601	5,571	7,277	5,326
Total Regeneration	5,513	9,400	5,601	5,571	7,277	5,326
Site Preparation						
Mechanical	3,102	3,161	2,620	1,250	2,463	858
Chemical	280	423	800	458	130	39
Prescribed Burn	87	-	-	-	-	-
Total Site Preparation	3,468	3,584	3,420	1,708	2,594	897
Tending						
Cleaning						
manual	-	-	-	-	-	-
chemical - ground	-	-	100	-	-	-
- aerial	1,500	2,732	3,337	2,391	2,151	2,281
mechanical	-	-	-	-	-	-
prescribed burn	-	-	-	-	-	-
Spacing, pre-commercial thinning, improvement cutting				-		
even-aged	-	-	-	-	-	-
uneven-aged	-	-	-	-	-	-
Pruning	-	-	-	-	-	-
Cultivation	-	-	-	-	-	-
Total Tending	1,500	2,732	3,437	2,391	2,151	2,281
Protection (Insect Pest Control)						
accelerated harvest						
salvage						
manual protection						
ground insecticide						
aerial insecticide						
Total Protection						

Source:

a) 1997-2002 Term (PLANNED): refer to 1997-2002 TMP 4.19
b) 1997-2002 Term(ACTUAL): refer to 1997-2002 RPFO 7
c) 2002-2007 Term (PLANNED): refer to 2002-2007 FMP 25
d) 2002-2007 Term(ACTUAL): refer to AR 2002-2007 Table 6
e) 2007-2012 Term (PLANNED): refer to 2007-2012 FMP
f) 2007-2012 Term(ACTUAL): refer to AR 2007-2008 Table AR-7

Table 7 - Harvested Area Successfully Regenerated - Summary of All Forest Units

MU:Big Pic Forest

	AREA IN HECTARES (All Forest Units Combined)	*AREA IN HECTARES (All Forest Units Combined)*
	Even-aged Management	**Uneven-aged Management**
Total Area Harvested	24,000	
Total Area Surveyed for Regeneration	15,882	
Total Unsurveyed Area	8,118	
Total Area Declared Successfully Regenerated	13,945	
Total Area Surveyed Not Successfully Regenerated		
NSR	1,937	
B&S		
Not Available for Regen. (eg. Roads & landings)	NA	
Other	NA	
Percent of Area Surveyed Declared Successfully Regenerated	87.8%	

For the period 1992-1997 - Source is Annual Reports AR-1 and AR-14
Source: Silvicultural records, depletion maps, 2002 planning inventory, FTG surveys